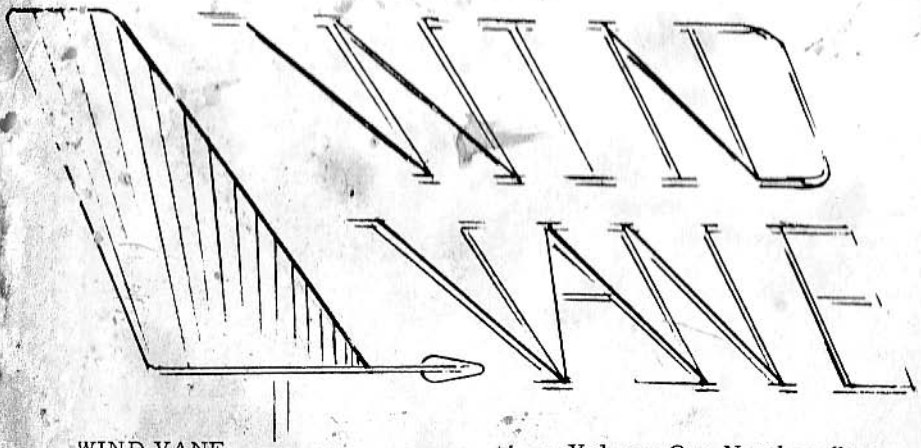

WIND VANE.....Volume One Number One

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WIND VANE IS . . .

Tucked away in a tight cove, or in a cluttered corner of some commercial basin, one sometimes sees a sailing yacht which sports a "wind vane," that solid little sail-like foil perched above the stern. It thrusts up in the air much like the rudder extends below the water, and in fact is sometimes called the "wind rudder" or the "steering vane." This foil is part of a device which allows the wind to communicate with the rudder, so that the boat can be made to steer itself.

Such self-steering devices have been in common use only for the past ten years or so, and have proliferated in proportion to public interest in serious offshore cruising. A boat so equipped is likely to have owners who really know their stuff - or who intend to learn.

For our purpose, WIND VANE symbolizes this endeavor - to learn cruising. Moreover, the self-directing aspect of the name is extended to mean self-providing.

Whereas most yachts are considered to be instruments of sport or recreation, and most cruises are regarded as far-out vacations, there are now emerging many boating people who focus their lives on their boats in a primary (not diversionary) way. They find themselves living on the water more than on the land! In some cases (and by varying degrees), "total cruising" people make all or part of their living with and from their boats. We call them "seasteaders" for they practice the skills or self-sufficiency afloat.

The need for a "bulletin of Seasteading" is not definitely established at this time. Cruising sailors often identify themselves with a fierce independence, and don't want anybody telling them how. This was the attitude of Jo Anna and Jim Brown when we took off on an extended family cruise a few years ago. We discovered that living on a boat, especially when combined with foreign travel, requires massive adjustments in lifestyle, and the development of many special skills besides seamanship. Judging from our own experience, and from our observations of many other cruising crews, we concluded that the more unskilled among us - the ones who most resisted altering their lifestyle but instead attempted to apply their landsman's ways to seafaring - were having a rather bad time of it. There is great disillusion in the ranks and there are many casualties. Conversely, the folks who had somehow made it past the disillusion, and who had gathered skills and attitudes consistent with a changed domain - these people were leading lives of great satisfaction and enjoyment. A singular trait they had was a willingness to share their wisdom, and much of that wisdom was the basic stuff of self-sufficiency afloat.

From this developed the idea that there is need for a publication like WIND VANE. But make no mistake; we are not advocating

that the reader give up his job and jump in his boat armed with just a bulletin. There is room in this endeavor for anyone to move toward self-sufficiency to any degree. You might try fishing from your own fantail, and if you catch a whopper why not try the brine idea in this issue. Then next weekend, try the recipe on board that calls for what you've preserved in this age-old manner. It works, it's good, and it's fun. No one is saying that you must commit yourself to total cruising in order to enjoy reading - or contributing to - this little periodical.

We need your contributions, and other readers need the wisdom you've acquired on this subject regardless of the degree of your commitment. Most of the material in this - our charter issue - comes from the "frontier," from people who are out there living the cruising life. But we are hoping to receive submissions from anyone; anyone who wishes to exchange what he has learned about seasteading from this bulletin.

Most of our contributors in this issue are multihull sailors. This is only because the publishers are multihull sailors themselves and have gathered the contents from their personal acquaintances. But WIND VANE is not purposely oriented toward, or restricted to, any type of craft. Whether you are managing to make it in the reeds on Lake Titicaca, or living on sunshine and seaweed while intentionally adrift in the Sargasso Sea - we want to know HOW.

No idle gossip now! We're not fooling around with a fad or a fable. The total cruising lifestyle is real - it is being lived in earnest and there are lots of us who are beginning now to fathom its significance. True, it's just a small sub-cultural spur, but its ideology accepts that we all could be much more self-sufficient than we are; that environmental discipline is a fact of life, and that a boat is a very good place to come to grips with these contemporary - yet timeless - truths. Certain social and economic problems result when fleets of private vessels begin roaming the world; and the growth of these fleets is a phenomenon of more than recreational proportions.

So that this phenomenon may guide itself, through communication between the wind and the rudder, we offer WIND VANE. We'll try to steer the course you give us, but it's up to you to keep a sharp lookout and let us know whatever might come into view.

Jim Brown

Jo Anna Brown

Tom Freeman

Tim Mann is really doing what we are writing about, talking about, thinking about and dreaming about; he is making his living on, from and with his boat.

Tim is a young man - only 23. At age 17 he began building his first boat - a 25-foot cutter. When it was completed he sailed up and down the California coast, frequently single-handed, gaining the experience and determination to pursue a greater goal, a larger boat which would not only be capable of long passages, but which also could contain those tools he needs to sustain himself.

Like a sewing machine. "I'm living on a low budget, because I don't like working for other people," he says with a laugh. "But when I do work, what I usually do is make sails or repair sails or make covers and things like that. I've got a sailmaker's sewing machine on my boat, rigged up so it works off a treadle."

That boat, the larger one - also built by Tim himself - is named SPICE and is a 37-foot cutter.

"Cynthia" (which is what Tim calls his sewing machine) is a Singer, model 107W1, patented in 1897. Tim put it together from bits and pieces of used parts at a cost of about $500; he says that a comparable machine, new, would cost perhaps $900.

"It's a good investment if you can afford it. She'll sew things that you cannot punch a hand needle through even with a palm. There are a lot of machines on the market for less money that'll sew through three or four layers of sailcloth; but what you need for really sewing sails is a heavy machine like this. This thing will sew through twelve layers of 9 or 10-oz. sailcloth and just keep on going - it's really solid."

Tim also points out that "Cynthia" has a power operated roller which pulls the sail through the machine so that the stitches stay even. And for those times when electricity is available, there is a $\frac{1}{2}$-horsepower motor with a clutch.

When Tim feels like working he hangs a sign off the back of his boat advertising "Sea Gull Sails: Sails Repaired, Awnings, Boat Covers, Tarps, Tents, etc."

"Then I sit and sew," says Tim. "I make sail covers for people, boom tents, wind funnels for the tropics . . . I figure I can use this to survive - wherever it is out there I need to survive. The more things like this I can do, the easier time I'm going to have of it, because I'll be more adaptable and able to make do with what's there. If there's a boatyard, I can work in the boatyard. If there are other people on yachts there, I can fit sails for them. And if there's nobody there at all, I can go pick wild vegetables, get fish out of the reef . . .

"Subsistence sailing? That's what I've been doing all along. I traded some sailwork to a fisherman friend for this combination gill and trammel net . . ."

But that's another story - one which Tim has agreed to tell us in a future issue of WIND VANE. He has been very successful at catching fish, not only for his own use but to share with others. He writes from Nuku Hiva in the Marquesas, "A good way to get acquainted is to walk into a village and ask if anyone wants to go trolling for tuna; and unless you're firm you'll have twenty people on the boat with you!"

He goes on to say, "Building a boat has been the best thing in my whole life! It's worth it, man - you know, I learned so much just building that I could have chopped the experience off there and still I would have been ahead of the game. Sailing was even more worth it. And cruising!! Well, I'm just about happy enough that I could die right now and not notice, except maybe there are no sailboats in heaven (or wherever the hell I'm going).

"I'm here now, after X number of years of working towards this place, and I realize - it's the same as California, or New York, or Virginia; at least for me in one sense - that there are just as many possibilities to learn and grow here as there were there, or vice versa. So with that in mind - I'm slowing down. I ain't gonna go running off after paradise no more 'cause I'm already there. And I was there in Tomales Bay and Half Moon Bay and all of the places I visited, only I had to come all the way here to realize it."

Of interest to yachtsmen is the Bicentennial project of the Polynesian Voyaging Society - the re-creation of a double-hulled sailing canoe (see "A Canoe Helps Hawaii Recapture Her Past" in National Geographic, April, 1976). The intended purpose is a 6,000-mile voyage from Hawaii to Tahiti and back, using ancient Polynesian navigating techniques. Of particular interest to seasteaders is the study of food preservation methods to be used by the voyagers in the attempt to duplicate the feats of their ancestors; such things as poi (made from the traditional taro root), dried bananas, breadfruit, sweet potatoes, coconuts and sun-dried fish will be prepared and carried by the crew. We hope to learn more about this exciting project, and wish all of those involved "aloha"!

DAVID MARION

In the late 60's we experienced, as did many, a profound dissatisfaction for what one might call the "waste and want" mentality of industrialized society, most pronounced in the life-style of the average U.S. citizen. We were alarmed at the dire predictions of respected individuals and groups who foresaw great problems for the human race as its numbers reached earth-fouling proportions and as its collective appetite exceeded the earth's limited ability to provide.

It was Garrett Hardin, in Nature and Man's Fate, who observed that members of an endangered society or species were more likely to avoid or adapt to sudden environmental change, and possibly to survive evolutionary events which might doom the whole, if they separated themselves geographically from the whole (decentralization). Hardin, among others, also observed that the "overspecialization" of certain species and the resultant reduction of their adaptability to change has been a major factor in preparing them for their very extinction.

Our course was set - build ourselves a sailing craft to give us the shelter and mobility we would need - access to the last great frontier; and, as well, give us the opportunity to learn a higher degree of independence from an overspecialized society - one, as we see it, that will succumb within our lifetime to the pressures of much too rapid change.

Yes, the fundamental motive was a chance for survival - and still is. But concern for physical survival soon made way for the more immediate reality of economic survival. What could we do to pay for our means of decentralization. How would we supplement our not entirely self-sufficient subsistence? Sure, the wind is free, but what do you trade the natives for a can of good bottom paint? We had no money - we didn't even know how to sail!

A desire to get the basics under our belt carried us from Tennessee to the shores of Lake Tahoe. It was here that we learned about wind and sails and the special freedom they provide. It was here too that we found not only a way to subsist while sailing but an opportunity to channel our deep-rooted concern for environmental quality into positive action.

Just as those "floating penthouses" reflect the ponderous affluence of the "Gold Coast" Floridians, Lake traffic here reflects the Californian's propensity for speed. Flat-bottomed, supercharged, jet driven, and without mufflers, these water-borne dragsters shatter the summer serenity with their particularly conspicuous consumption. And then there is the M.S. Dixie, largest of the motor-driven excursion boats, a poor imitation of a Mississippi River sternwheeler, and a blight on the Sierra land-

scape. It smokes and drones its way across the Lake propelled by three gulping, gushing Greyhound bus engines.

High on sailing we wondered what we could do to stimulate interest in it, to get more people out of the motorboats and into sailboats, and to get into our own sailboat. The answer seemed to have a number of potential advantages. Among the most important to us was the financial consideration - the option of having our boat provide for us and even pay for itself.

Our plan was to build a trimaran expressly for the purpose of sailing excursions on Lake Tahoe. We would be offering the average summer tourist and resident something which had unfortunately never before been openly available to them at this Lake - the opportunity to take a short ride on a large sailing craft.

Only careful research into and planning of the projected commercial operation enabled us to obtain loans for the venture. In October, 1973, we began to organize the construction effort and by New Year's Day, 1974, we were at work on a dream.

After eighteen months of nearly non-stop effort, WOODWIND was ready to sail. On July 2nd she was moved to the Lake, launched and sailed into Zephyr Cove. Two days later a private charter party celebrated our liberation from the bonds of boatyard existence and marked the birth of two new subsistence sailors.

The plans had been approved by the Coast Guard prior to construction - the first step in obtaining the required U.S.C.G. certification. Modifications to the cockpit enabled WOODWIND to secure Coast Guard authorization to carry 24 passengers and a crew of 4, and one year of sailing experience qualified us to man the helm.

In the three months of July, August and September, little known and operating at an average one-fourth of maximum capacity, WOODWIND took aboard over 2000 people and grossed approximately $9000. Next summer, between May 1st and October 1st, we we expect to move, by windpower alone, more than 5000 people out onto this Lake.

So, we submit to you that people certainly should be considered as a profitable "legal cargo" by anyone concerned with a means of Subsistence Sailing. And carrying passengers-for-hire is a service that can be performed virtually anywhere in the world. A skipper might offer fishing, snorkeling, and/or sightseeing excursions, practical instruction in sailing and small boat handling, or even a simple shuttle service from one point to another. He would have the satisfaction of providing for his fellow men a valuable experience, as well as providing for himself and his boat.

We have, as you can see, a great interest in promoting sailing for a variety of reasons. We are concerned with the practical

development of windpower as an alternative energy source, and with slowing the too rapidly accelerating pace of existence in the industrialized societies. We feel that the decentralization of those societies and a marked return to the ethic of greater individual self-sufficiency is necessary to our very survival. Sailboats, whether used primarily for recreation, cruising, or commercial purposes, can help serve those ends while providing their owners with more immediate and tangible benefits.

We still plan to build our own ocean-cruising trimaran someday, and with it to visit those places and pursue that lifestyle we have long dreamed of, but we also intend to continue our promotion of sailing wherever we may be. The knowledge and funds gained from the WOODWIND venture will help us achieve those goals.

WOODWIND, now sailing in full charter service out of Zephyr Cove, Nevada. For charter information write to WOODWIND, Box 1375, Zephyr Cove, Nev. or phone (702) 588-6121

In order to obtain the license required to carry passengers for hire on U.S. waters, a person must be eighteen years of age or older and must first make written application to the Officer in Charge at the U.S. Coast Guard Marine Inspection Office for the particular Coast Guard district in which he plans to operate. These offices can be found in nearly every major U.S. coastal city.

The applicant may obtain there a copy of CG-323, Subchapter T, titled Rules and Regulations for Small Passenger Vessels (under 100 Gross Tons), which defines all that the Coast Guard requires of the vessel and its operator. In the following paragraphs are excerpts from that manual which would apply to anyone who hopes to earn an income with their sailboat by carrying paying passengers.

Such aspirants must present when making application notarized affadavits from at least two other individuals who can testify to the amount and character of the previously acquired sailing experience necessary for the desired license. If the applicant wishes to carry only six or fewer passengers at a time, no matter what size or type boat he has, he must obtain what is called a Motorboat Operator's License. Proof of 12 months' experience on virtually any sort of watercraft will qualify the applicant to take the Coast Guard administered test for that license.

For skippers who want to carry more than six at a time (any number up to the capacity of their boat), different rules apply. Requirements are subdivided into 1) those for operators on other than ocean and coastwise waters (lakes, bays and sounds) and 2) those for ocean operators. From CG-323:

> 187.20-5(b) An applicant for a license as operator (on other than ocean and coastwise waters) shall submit satisfactory evidence of experience as follows:
>
> 187.20-5(b)(1) For operator of mechanically propelled vessels, sailing vessels, or non-self-propelled vessels, he shall submit satisfactory evidence of at least 12 months' experience in the operation of the type of vessel specified in the application.
>
> 187.20-5(b)(2) For operator of auxiliary sailing vessels, he shall submit satisfactory evidence of at least 18 months' experience in the operation of mechanically propelled vessels, sailing vessels, and auxiliary sailing vessels, of which at least 12 months' experience has been in the operation of sailing vessels or auxiliary sailing vessels.

Considerable more sailing experience is required to qualify for an ocean operator's license:

> 187.25-10(a) The minimum service required to qualify an applicant for examination for a license as operator of sail-propelled vessels in ocean service is:
>
> 187.25-10(a)(1) Two years' service as operator in charge of ocean or coastwise sail vessel carrying (non-paying) passengers; or,
>
> 187.25-10(a)(2) Three years' service in the operation of ocean or coastwise sail vessels.
>
> 187.25-11(a) The minimum service required to qualify an applicant for examination for a license as operator of auxiliary sailing vessels in ocean service is:
>
> 187.25-11(a)(1) One year's service as a licensed motorboat

operator on ocean and coastwise waters and 2 years' service in the operation of ocean or coastwise sailing vessels; or,

187.25-11(a)(2) 18 months' deck department service in the operation of ocean or coastwise motorboats or small motor vessels and 2 years' service in the operation of ocean or coastwise sailing or auxiliary sailing vessels; or,

187.25-11(a)(3) One year's deck department service in the operation of ocean or coastwise motorboats or small motor vessels while holding a motorboat operator's license or a license as operator of mechanically propelled vessels and 2 years' service in the operation of ocean or coastwise sailing or auxiliary sailing vessels.

After proof of experience has been submitted and application accepted:

187.10-15(a) All applicants for an original license shall be required to pass a physical examination given by a medical officer of the United States Public Health Service, or other reputable physician, and present a certificate executed by this Public Health Service Officer, or other reputable physician, to the Officer in Charge, Marine Inspection. This certificate shall attest to the applicant's acuity of vision, color sense, and general physical condition.

This examination may be obtained free-of-charge at any Public Health Service facility.

Having fulfilled these requirements the applicant must then undergo a written exam for his particular license. For example:

187.20-17(a) The examination (for operators of auxiliary sailing vessels on other than ocean and coastwise waters) will consist of questions on the following:

187.20-17(a)(1) The Rules of the Road applicable to the waters over which the applicant operates.

187.20-17(a)(2) Fire protection and extinguishment.

187.20-17(a)(3) Lifesaving equipment.

187.20-17(a)(4) The operation of propelling machinery, particularly the safe and proper handling of gasoline and gasoline engines.

187.20-17(a)(5) The operation and navigation of auxiliary sailing vessels carrying passengers.

187.20-17(a)(6) Simple first aid.

187.20-17(a)(7) Rules and regulations of this subchapter applicable to vessels operating in other than ocean and coastwise service.

187.20-17(a)(8) Pollution laws and regulations.

An applicant for ocean operator's license must posses considerably more knowledge, of course, but no more than a prudent open-ocean sailor should be familiar with in any case.

The test questions, all multiple choice, are prepared from information contained in Chapman's Piloting, Seamanship and Small Boat Handling and in CG-323, Subchapter T. The exam itself is long and difficult, but should the applicant fail it on first try, he may retake it after one month.

The Coast Guard charges no fee for any of its services, so the actual cost of obtaining an operator's license would be minimal.

Should a skipper decide to limit his operation to a maximum of six paying passengers per outing, the task of preparing his boat for business will be made much easier. Just what preparations he makes are almost entirely up to him to determine. The vessel itself need not meet any sort of Coast Guard requirements other than those for proper lights and lifesaving equipment - standard equipment on any boat.

To carry more than six passengers - any number up to its U.S.C.G. -designated capacity - a vessel must obtain Coast Guard certification by meeting specific requirements set forth in CG-323, Subchapter T, and passing yearly Coast Guard inspections. The rules and regulations of Subchapter T cover the vessel's construction and arrangement, watertight integrity and subdivision, stability, lifesaving and fire protection equipment, machinery and electrical installation, as well as operations, manning, and licensing.

Most of these requirements must be met by an expenditure of money. Coast Guard tested and approved materials and equipment cost more, of course, but the factor of improved safety and reliability may be worth the difference to any yachtsman.

The ease of meeting requirements for the construction, watertight integrity, and stability of any boat is dependent on both its designer and builder.

We'll do our best to advise in more detail anyone who, after reading this article and CG-323, Subchapter T, decides to establish a sailing charter operation. We can't guarantee a reply to all written correspondence, but would be glad to trade information and insight with any WIND VANE readers who are able to come and sail with us here on Lake Tahoe this summer.

If you have not yet met Sandy and Dale Stennett, you soon will in these and future pages of WIND VANE. They have provided our foremost example of what seasteading is and can be, and it was largely through their encouragement and contributions that WIND VANE came into being.

They began building their boat - a "Lodestar" trimaran - in 1963 in California. Five long years later, they moved on to their new home, "Never to return to a house on dry land." The next 4½ years were spent sailing San Francisco Bay, which they felt was an important factor in the success of their subsequent cruising experiences, "As we had NO previous sailing experience before casting off the dock lines and hoisting the sails on TRES REYES."

With their sons Mark (now 13) and David (11) they left San Diego in March of 1973, and after two years cruising Mexico and Central America, arrived in Miami "with $140 and one hell of a stack of molas." Since then they have supported themselves largely through the sale of these brightly colored blouses which they brought from the San Blas Islands off the coast of Panama. The boys contribute too by selling the necklaces and bracelets they make from macrame, assorted seeds, teeth, shells and other interesting things collected in their travels.

They are now living on their boat in Key West, Florida where Sandy manages the Old Island Trading Post; Dale spends his time remodeling TRES REYES (he has made the decks open-wing and

changed the rig from ketch to sloop among other things) in anticipation of going cruising again in the near future.

With that brief introduction, may we present Dale Stennett - "Kap'n Grunt!"

AVAST THERE

Key Weird - Where the Lobsters Is!

fellow sufferin' Seasteaders - greetings from Da Grunt. Old TRES REYES, Floating Necklace Fabrica, is a beehive of activity. Looks like we'll do okay to outasite with the necklaces - the kids snagged $93 off the beach in 6 days and are investigating the various consignment situations with the local shops that are popping up all over. Competition is feeble at the most - one thing that is very striking is that for supposedly NON-COMPETITIVE PEOPLE we are in a very good position to compete in the Market(s) Place(s). Does this have something to do with our Subsistence-SURVIVAL-Patience Lifestyle these last 4 years?

About Seasteading: I think the subject should not be oriented toward type of vessel, but rather examples of How-To stuff from people on Diverse Floating Craft - monohollers, trihollers, other hollers . . . (hard to get this straight right now as Sandy is explaining to the kids how Cats have Kittens, and I might learn Something) . . . Okay, learned a bit - back to Seasteading! It don't matter about the vessel, it's the people that make it Happen - sometimes in spite of their vessel! I've seen this so often!

Kap'n Grunt's Surefire D^3* Method of Drying Meat for Oceangoing Cruisers:

The following meats are easily preserved via this method: beef, turtle, fowl, eel, crab, lobster, shrimp, octopus, fish, conch, shellfish, iguana, alligator, armadillo, aardvark and an occasional rabid Tit Mouse.

THE BASIC STUFF: Soy sauce fortified with Thick Soy (4 oz. Thick Soy to 1 quart Soy Sauce). This mixture may be made up ahead of time and kept on the boat in plastic containers (we use Clorox Jugs).

JAZZED-UP BASIC STUFF: The following goodies are added to one pint of THE BASIC STUFF when processing meat via D3 method: 2 large cloves garlic - peeled, sliced and smashafied: juice of

*D^3 = D. D. D. = Dunk, Drain & Dry

½ lemon or lime: 1 tsp. Worcestershire sauce; 1 Tblsp. vinegar: ½ tsp. powdered ginger. Optional: 1 Tblsp. Liquid Smoke

DUNK: All meats are processed in the raw state (except crab, lobster & shrimp). Raw meat should be cut into thin slices no thicker than 3/8"; any fat should be trimmed off. Add slices of meat to the JAZZED-UP BASIC STUFF being careful that all meat is covered with the liquid. Allow the meat to sit overnight (no longer than 24 hours) in the liquid.

Crab, lobster & shrimp should be boiled 10 minutes in sea water, then shelled, shredded or sliced and added to the JAZZED-UP BASIC STUFF as above.

DRAIN: To be done first thing in the morning to take advantage of long exposure to the sun. The liquid is drained from the meat so that there is little liquid on the surface of the meat. Raw meat may be liberally peppered on both sides (we buy pepper in 1-lb. cans). The lobster, crab or shrimp is simply drained of liquid.

DRY: The day must be Sunny! (See "PANIC!" below if the day is a bummer.) We string up all stringable meats with sail needle and twine. Non-stringable meats are laid on plates, boards, the deck, etc. and turned over every hour or so to expose all meat surfaces to the sun. Take meats in at night and repeat drying for a total of four days. Pets love meats, so hang 'em high in the rig (our cat chews the tails off all the fish for us!).

PANIC!: Usually because of no sun, rain, hail, hurricane, etc. Shredded meats (lobster, crab, shrimp) may be placed in a bread pan, etc. and heated over a low flame in the galley with much stirring until the meat is dry (no liquid remains in pan); then placed out to dry in the sun the next day. Other sliced meats may be hung on wooden sticks over a mangrove-wood fire and heat smoked - but not cooked. This involves a bit of rushing about and lots of attention - so it is better to pick your Sunny Days!

MISCELLANEOUS: We have stowed meats dried via this method in in plastic bags, jars, etc. for up to 8 months. We use the meats in stews, soups, rice, beans or sometimes just as snacks. Preserving meat is fun and cheap (especially when local canned corned beef is $3.00 for 8 oz - if you can get it, and the local Burro is going for 40 cents per pound - bring your own axe!) There are many other methods for drying meats and vegetables. It is fun to experiment with new methods and try your hand at a new type of local varmint. But a word of Caution about one of the world's most dangerous Animals - don't ever-never corner a Tit Mouse as they are Flat Vicious when cornered! (Usually having just finished off an emaciated vegetarian or two.)

If you have any pet seasteading projects that need a re-hacked antique testing platform, then send 'em along - we've got a few of

our own (mostly pertaining to FOOD!). We'll try anything short of making the boat back to solid wings and ketch rig and interviewing nude floating freeks. Floating freeks with duds, si - sin ropas, sule! (Want to write about the tiresome Bare Ass Boaters at another time . . .) That's it from Key Weird - Squirlie, our cat, is due to launch conch varmits any day now . . .

Da Grunt & Krew

FLOATING DOC

.....CHARLES HOLLOWAY, M. D. - BARBARA GABERT, M. D.

—MORE THAN YOU WANTED TO KNOW ABOUT TURISTA—

This article is about that intestinal distress commonly called "turista". It will cover the normal anatomy and physiology of the intestine, the origins of "turista", how to avoid or minimize it, and failing that, how to, and how not to, treat it. It is my opinion that far too much is treated when more conservative measures would suffice, and most of the time, be preferable.

To eat is human.
To digest is divine.

When conditions are such that you are called upon to think about your intestine, it is helpful to remember that you are, at least topologically, a donut (albeit a special donut) with the inside of your alimentary tract representing the hole in the donut. It is special in the sense that you can select what will go into the hole, and once it is in, you have the ability to change and absorb some of the contents and reject others. Right from the start you may reject some candidates who have applied for entrance to your "hole" because e.g. it isn't the right color, it doesn't smell good, its temperature or texture is wrong, etc. Once in, the process of changing preparatory to absorption starts immediately with the addition of saliva, which contains some digestive enzymes, and perhaps with chewing, which increases the surface area for your digestive juices to work on. Also, impulses, both chemical and neural, are sent to your stomach and intestine so that they may be better prepared to deal with the beer, sashimi, green chili enchiladas or whatever you, in your wisdom, have selected for admission. In the stomach, fluid, acid and enzymes are added to further separate out the good stuff, and after appropriate incubation, the whole mess is usually sent on to the small intestine. However, the whole mess can also be rejected by vomiting... because your small bowel is not able to digest food at that time, or for some other reason you are not physically or mentally prepared to go on with the process. Vomiting is one of Nature's ways of bringing to your attention that all is not right, and the idea is you are supposed to think about it, and maybe modify future circumstances so that it won't happen again.

But let us say that the reject process has not been triggered, and the stomach contents have been passed on into the "hole" of the small bowel. Here, under normal conditions, the process of fur-

ther separating the good stuff from the bad by the addition of fluid, bile, and more enzymes, goes on. In addition, the good stuff, (proteins, fats, carbohydrates, vitamins, etc.) through various elaborate and curious processes is allowed to pass from the "hole" into your body. If, however, conditions are not normal, and digestion/absorption does not proceed, the courses of action available to the small bowel are quite limited. Most of the time it will try to empty itself by adding more fluid and speeding up its action so as to pass the buck to the large bowel, or colon. The choice of rejecting the unwanted stuff upward via the stomach, esophagus and mouth is, except under certain rare and serious circumstances, not available. Under even more serious circumstances, the small bowel won't even attempt to empty itself. But most of the time, when it has to, the small bowel is able to clear itself. This process is brought to your attention by an increase in gurgling from your belly, and by shifting cramping pains, and later by diarrhea.

But again, let us say that the normal processes of digestion and absorption have gone on through the twenty-odd feet of your small intestine and its contents have been passed into the "hole" of your colon. Now nature has arranged for a colon as a convenience to you: It is a place to store the undigestible stuff you ate till such a time as you choose to eliminate it, which is better than having small bowel contents dribbling down your leg all day, and it is an area where water is reabsorbed back into the body, which cuts down on the amount of water you have to carry on your boat. But just as with a lot of modern conveniences, there's a maintenance problem, for even though you can't extract any more energy from what's left of your "hole" contents, there are many bacteria, fungi and other parasites which can. To circumvent this problem, nature has arranged for certain strains of bacteria, Escherichia coli, Aerobacter aerogenes, Proteus vulgaris, Bacteroides fragilis, etc. to live there, and when confined to the colon they do not make you sick. At least, that's the way it's supposed to work.

Now let us consider what can go wrong, and the topic of this column: Traveler's Diarrhea. Let us say that this thriving bacterial culture in your colon has arranged for you to transport it to a foreign shore. You are careful about drinking the water or eating in open markets, but a couple of days after arrival you notice you have been limited to activities 100 meters or less from the head because of frequent diarrhea. It is watery brown, has no blood or pus in it, doesn't particularly hurt when it runs out, or just after, and you don't have a temperature. What is going on? Well, it's the trots, the turista, Eisenhower's revenge, etc., or as we'll call it, Traveler's Diarrhea. This entity is only in the last few years becoming better understood, and is responsible for the vast majority of simple diarrheas travelers get. Now you have heard that you are supposed to take Entero-Vioform, or some antibiotic like penicillin or tetracycline, avoid certain foods, or take Lomotil or paregoric. So you do one or more of these, and four or five days later you are better. Hence, your treatment was

correct; you got better, right? Well, no. What has happened is despite all that you are better. In fact, with the exception of a very few diarrheas like Shigellosis or amebiasis, you should take no medications to kill the "germs", and no medications to stop the diarrhea.

The evidence to date indicates that Traveler's Diarrhea is due to a heat-labile toxin elaborated by E. coli in response to being exposed to the local strains of intestinal bacteria. The result of this political upheaval is a new population of bacteria which are stable in your new environment. The intestinal wall cells are not destroyed, but they are affected by the toxin which causes them to secrete water and salts, and this causes the diarrhea. If you take Lomotil or paragoric, which paralyzes the intestine, you help keep the undesirable elements from being washed out, and thus prolong your illness. If you take antibiotics, you can kill off the normal bacteria and set up a situation ripe for the invasion of the various pathogens which were being kept out by the E. coli etc. in the first place. And you won't know anything about the new invaders except one thing: They can't be killed by your antibiotic. If you have taken Entero-Vioform, you haven't affected the political fight at all. You will notice, at most, the side effects of that drug, which include a rather profuse diarrhea that comes on by the second or third day (50-60% of patients), severe gastric distress (5% of patients) and an increase in blood iodine which can suppress the thyroid, which most people don't get because they don't take it long enough. For these reasons, and because it is associated with a severe neurologic disease involving the optic nerve, Entero-Vioform has been taken off the market in the U.S., although it is still available in many foreign countries. Don't take it.

What you do do about Traveler's Diarrhea is replace what is being lost, mainly salts and water. Potassium chloride is one of the major salts lost in diarrhea, and it is an important one, especially in children because they can get into trouble with potassium loss very quickly. You can make your own replacement solution using water, potassium chloride, sodium bicarbonate, sodium chloride, and glucose:

Water	-	1 qt.
$NaHCO_3$	-	1 tsp. baking soda
KCl NaCl	>	1 tsp. salt substitute
Glucose	-	2 tbsp.
Flavoring	-	Koolaid

Koolaid, Soda pop - to drink

Broth

Water	-	1 qt.
Beef Bouillon	-	3 cubes
Baking Soda	-	1 tsp.
Salt Substitute	-	1/2 tsp.

Or there are packets you can buy which have all these things... all you do is add water. UNICEF distributes one called Oralyte. The Swiss make one sold as Choloral. These are not available in the U.S., but Gator Ade is, and it is ideal. Whatever you use, you should keep it refrigerated, or use it up right away, as it is a good medium for growing bacteria at room temperature. Above all, remember fluid replacement. You are taking enough fluid if you are producing a normal urine output. If you are in a place where you can't make or buy a real replacement solution, then use tea. Tea is tolerated by almost everyone. Beer is not a bad substitute because it is sterile and replaces some of the salt as well as water. You should not take much food as your poor old intestine is not in a state where it can do much digestion, and you will just end up adding fuel to the political battle. A little rice or apple sauce is usually tolerated pretty well, however. Keep in mind that you are only serving as a battlefield for a local political squabble, and it is better not to become involved. You will lose a few natural resources, but if you replace these at the top, it will all pass in the end. Have faith.

There is some evidence that a drug called pthalysulfathiasole, sold under the brand names of Sulfathalidine or Cremothalidine, taken one gram in the morning and one gram at night, will reduce the incidence of Traveler's Diarrhea; but for it to work, you have to take it all the time. I don't recommend it for anyone who is going to be gone more than a week.

There are many other infectious diseases which can cause diarrhea, but almost all of them can be treated exactly like Traveler's Diarrhea. Two exceptions are Shigellosis and amebiasis, and they should be treated with drugs: Shigellosis with ampicillin or tetracycline (although there are an increasing number of cases with resistant strains being reported), and amebiasis with metronicasole, sold in the U.S. under the name of Flagyl. (Amebiasis is the one which used to be treated with Entero-Vioform). Both Shigellosis and amebiasis often cause a bloody diarrhea, and a good rule of thumb is that if you turn up with bloody diarrhea, hie your body to a doctor and let him test your stool and treat you if indicated. But if you simply have Traveler's Diarrhea, then replace your water and salts, eat sparingly, and save your money.

Floating Doc will be appearing in each issue of Wind Vane. This topic was chosen at random by the author. If you have suggestions for future topics, as well as specific medical questions, send them to the Floating Doc in care of Wind Vane, and we will answer them as the time/space continuum allows.

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One reader defines seasteading as "water squatting."

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TAY VAUGHAN LOOKS AHEAD

Tay Vaughan's futuristic projections on seasteading are founded on true-grit experience. After a diverse academic education he apprenticed to a fine furniture maker, and built his own boat (31-foot cutter GREAT BEAR) in which he has cruised extensively. He now serves as Western Regional Director of the Oceanic Society (publishers of Oceans magazine). Following are his off-the-cuff comments on the individual's private ocean-spaceship; more in future issues. Let's have some feedback.

Letter from Tay Vaughan, WIND VANE's Systems Generalist:

I've been thinking of self-contained life-support vessels for ocean families. Systems-wise (I use the word guardedly), it should be possible to create a perpetuating "organic" creature, manned by homo sapiens, which through proper guidance and maintenance and design should support its crew - sort of a creative symbiosis. Whether feasible, however, is a question of both environmental and socio-cultural stresses and responds to an equation which remains very complex, reflecting dollar costs, developmental research problems, material availabilities, maintenance capabilities, interpersonal psychologies, human benefits, etc., etc.

There is the point of not taking - but co-existing. One can't just harvest krill without depletion; there has to be a balance. You take, use, but them return something at the end of the equation so that you might come again to the source and repeat the cycle. The CYCLE!

So you develop a number of parameters which include the vessel's construction and design (is maintenance possible without recourse to the land and will it last forever?); water and food systems (sustenance of crew); navigation (seasonal migration); energy (cooking, lighting, emergency auxiliary power); crew hygiene; utilization of personal space and time to prevent boredom and too much stabilization of routine; and so on.

Then, with an idea of the system's (or being's, or thing's, or animal's) organic parts, you move toward specific refinements: e.g., food should be hydroponically self-grown in quantities necessary for sustenance; gathered foods (fish, krill, littoral zone animals) should be supplemental. Independence! Seawater and sun and natural by-products (i.e., heads piped to holding tanks for production of nitrate fertilizers as well as cooking gases) should produce a viable cycle. Water solar distilled through glass or plex decks as well as gathered from rain. Energy caught and stored via tungsten crystal solar cells or wind generators and stored in Nicad batteries (supplemented by animal fat lamps and stoves perhaps, but not dependent upon externals). Methane is good.

Premise-wise, one would think it unwise to force the production

and cultivation of land-borne flora at sea. Why take sprouts, for example, to sea with you instead of developing tastes for Porphyra or Dulse (see Euell Gibbons, Stalking the Blue-Eyed Scallop, pp. 245-255) or tastes for algae which can be produced under controlled production protocols and which are as nourishing? It would seem that those foodstuffs grown most readily in the natural ocean environment would provide the greatest payoff.

But, eh ha! Research and Development. Refinement of the cycles, the sub-cycles, the interdependencies and the survival thresholds... there's the essence of the thing. How to go to sea and not have to return. How to cope with others doing the same - to compete for rich territories; the basic human conditions apply here as well as in the sub-Sahara or the Turkish wastelands.

Fantastic problem, interesting concept, and very stimulating!

WE NEED TO KNOW ABOUT . . .

Foraging. What wild foods are accessible to cruising people in which parts of the world? What seasons of the year do you find them, how do you identify them, gather them and prepare them?

Sprouts. Any equipment or techniques which are particularly applicable to boats? Any tricks to conserve water in rinsing?

Cooking with a wok on a boat.

Macrame. Any tips on making money doing macrame from your boat? Any special equipment necessary or desirable?

Trading items. What things can be carried on a boat to trade for other things more valuable to the seasteader? What specific items in what specific places?

Canning fish and other foods using a pressure cooker with a temperature gauge.

We welcome any contributions on any subject relating to seasteading. The topics listed above are only suggestions of the kind of information we are seeking.

If you want to share your knowledge with our readers, please make your submissions as detailed - but as concise - as possible. Step-by-step how-to information is most useful - but we will be grateful for anything you send.

Tape recordings are okay, if that's how you communicate best. That means being a skilled narrator, able to make a coherent point on tape free of wanderings, ifs, ands and ahems. But transcribing tapes is time consuming, often inaccurate - and tedious work for the transcriber.

TED TOOMAY

A BIBLIOGRAPHY OF BOOKS ON SURVIVAL AT SEA

Thomson, Thomas, LOST! 1975, Antheneum
A thirty-foot Piver trimaran flips on a voyage down the West Coast of U.S. Occupants are able to survive by chopping a hole in the main hull - for awhile. This book has a strong psychological and religious (anti-) flavor.

Ridgeway and Blyth, A Fighting Chance, Lippincott
Two British paratroopers row across the Atlantic. The lark becomes an ordeal of survival.

Ruben, Olaf, Minerva Reef, Little Brown
A sailboat full of Tonga Islanders cracks up on Minerva Reef between Tonga and New Zealand. The crew survive off the reef waiting for rescue until as a last resort they build an outrigger from scraps and three of them sail for help. Some die. All are debilitated. But one man is almost unscathed by the adventure, in some ways stronger than on the day he left Tonga - largely because of attitude.

Lansing, Alfred, Endurance, New York, McGraw Hill
Shackleton's incredible voyage across the Southern Ocean in a small open sailboat. Terrific book!

Bailey, Maurice and Maralyn, Staying Alive, David McKay Co.
117 days adrift after being sunk by a whale off the Galapagos Islands. The woman is superb - optimistic, entertaining, inventive. She keeps them alive.

Robertson, Dougal, Survive the Savage Sea, Praeger Publications
Another sinking by whales off Galapagos and 38 days adrift. Good human interest between members of the family and tension between family and outsider.

Smeeton, Miles, Once is Enough, Humanities
Smeeton and wife flip Tzu Hang on a voyage around the Horn - barely survive and return to flip it again.

Bombard, Alain, Doctor Bombard Goes to Sea, Vanguard
Bombard sets out across the Atlantic to prove that a man in a small boat can survive without help for a long time - two months.

Fear, Gene, Where Am I?, Survival Ed. Assoc.
A text and workbook for personal navigation - anywhere.

Burdick, Eugene, an article in Holiday Magazine (collected in Blue of Capricorn)

> About some natives picked up in an outrigger on the open sea after fighting storms and adverse winds for several weeks. They were on their way to Truk to get cigarettes. Although the outrigger had capsized more than once during their ordeal and they had been eating raw fish and drinking rainwater to survive, they were far from from prostrate when rescued. Within a few hours after being picked up, they were out on the deck of the steamship working to repair their outrigger while puffing away on cigarettes given them by the crew. The point Burdick makes is that primitives accept the suffering as a matter of course and cope with the situation while civilized man is overwhelmed by the prospect of anguish and pain and collapses.

Ted concludes: "This bibliography is rather slim. Included in the list are only those I could locate. Some of these are out of print but can be found in some libraries."

Other Sources of Information Relating to Seasteading:

Seven Seas Cruising Association
PO Box 14514
N. Palm Beach, Fla. 33408
(subscription - $7 per year)

The Mariner's Catalog
International Marine Publishing Co.
Camden, Maine 04843
($4.95 per volume - three volumes)

The Cousteau Society
777 Third Avenue
New York, N.Y. 10017
(membership $15 per year)

The Last Whole Earth Catalog
Whole Earth Epilog
(available in any bookstore)

The Slocum Society
PO Box 857
Hilo, Hawaii 96720

OCEANS
A Publication of the Oceanic Society
PO Box 65
Uxbridge, Mass. 01569
(membership $12 per year - six copies)

The Mother Earth News
PO Box 70
Hendersonville, N.C. 28739
(subscription $10 per year - six copies)

The Co-Evolution Quarterly
(Supplement to the Whole Earth Catalog)
Box 428
Sausalito, Calif. 94965

Sea Frontiers
A Publication of the International Oceanographic Foundation
3979 Rickenbacker Causeway
Virginia Key, Miami, Fla. 33149
(Minimum annual membership - $15)
Complimentary literature sent upon request

These are some of the sources that we know about; if you know of other up-to-date ongoing publications containing information useful to those seeking greater self-sufficiency afloat, won't you tell us about them? A brief review would be helpful.

LETTERS

From Tim Green, Paisley, Oregon:

I, my wife Kathy, and Larry (a friend) have been building a 40-foot cutter for the last 2½ months. Your newsletter inspired this letter.

Survival is indeed a reason behind our construction of a sailboat, but not the only reason. A person in order to fulfill his life must seek personal satisfaction which means living by the cards he dealt himself.

Please allow me to explain my "survival philosophy":

I have never sailed a boat larger than 12-feet, never stepped foot on one larger than 25 (all three of us are in a similar situation) but we have a tremendous desire to learn and eventually master ocean living. My complete attention has been to the completion of the boat. We've made a few mistakes on the construction due to our ignorance as we are "learning as we go."

People continuously ask me "Do you know how to navigate?"

"No, but I'll learn," I answer.

"Do you know how to work all the sails?"

"No, but I'll learn," I answer.

"Do you know how to build a boat?"

"No, but I am learning," I answer.

Indeed, Kathy, Larry and I are the true neophyte boatbuilders and sailors. Before construction we didn't know what a stern, stem post or chine was but we now have learned not only what they are but how to place them as part of a solid framework with great skill.

The point is that we have learned an immense amount about boat-building in a short time. We will know our boat.

Sailing technique will have to come later. We are about 400 miles from the nearest charter service and about $400 short for the trip and fee. We will learn on our boat with a reliable teacher and thousands of pages of information inside our heads.

What the philosophy of survival boils down to is coping with the unknown. Educating oneself to the best way to deal a winning hand.

People stop by our shop (situated in Paisley, Oregon in an isolated segment of the Oregon desert). There is a painting of our boat on the double doors with "Paisley Boat Works" stenciled on a board a few feet above. Almost daily someone says, "You'll kill yourselves." I used to go into great detail trying to explain my survival philosophy by citing car wrecks, plane wrecks, deterioration of the body by smog - but now I only say, "yeah, we might" and continue building.

But I'll say now that I'd rather die enjoying my survival at the age of 24 than hating the sawmill for a lifetime.

From Lewis Clark, St. James City, Florida:

Received your newsletter and would like to add the following information.

We've lived aboard for the past two years doing some gunkholing here in Southwest Florida. While not really qualified cruisers - yet - the enclosed brochure about the grain grinder ought to be of interest to a number of people. It's a fantastic piece of galley equipment. We've used it to grind corn, wheat, soy beans, coffee beans. We feel it's well worth the 10 lbs. of "grinding" weight we carry with us.*

* The grinder Lewis and Adrienna Clark use is the Model "OB" (Quaker City) Hand Grain Grinder, imported and distributed by: Nelson & Sons, Inc., P. O. Box 1296, Salt Lake City, Utah 84110. Lewis says that as of August, 1975 its cost was $16.

Of course we carry a 4-qt. pressure cooker and were all set to can up that big catch of fish until some research led to a lot of no-no's from the Agriculture Department unless one has a pressure canner with temperature gauge. So further research (one does have to eat) came up with reliable methods for salting down fish (ed. note - see article on brine salting, p.27), and then drying fruits and vegetables quickly with a simple solar dryer. That does make it possible to take advantage of local abundance wherever you might be. In a public library this reference can be found in which so many imaginative food ideas can be adapted to "subsistence" aboard: Putting Food By (2nd ed. revised and enlarged) by Ruth Hertzberg, Beatrice Vaughn and Janet Greene. The Stephen Greene Press, Brattleboro, Vt. 1975. Anyway, it's all food for thought!

HOME PRESERVATION OF FISHERY PRODUCTS

The following information is taken from a U.S. Department of the Interior pamphlet no longer in print:

Fish may be corned, brine-cured, dried, dry salted, smoked, or pickled (vinegar cured). These methods have several advantages over canning; they are simpler, do not require much equipment, are less expensive, and permit utilization of varieties not canned successfully. One disadvantage, however, must be kept in mind: unlike canning, these methods do not preserve indefinitely: in fact, for certain fish and methods, preservation is limited to a comparatively brief period. This single disadvantage, though important, does not outweigh the many advantages of fish-curing (a general term for all these methods of preservation). Moreover, even when containers and canning equipment are readily available, fish curing is often preferable to canning.

PRESERVATIVE ACTION IN CURING FISH

Food preservation is essentially the prevention of spoilage. The most important cause of spoilage is through micro-biological action. Fresh, dried, salted, or smoked fishery products may be rendered unfit for use by a wide variety of causes other then ordinary decomposition. Micro-organisms, however, are the cause of putrefaction, which is the ordinary form of spoilage. They require moisture and warmth for development and the most favorable temperatures for the development of spoilage organisms are from 70 degrees to 100 degrees F. Therefore, removal of a large part of the moisture from a given product, and its storage at temperatures unfavorable for bacterial development have a direct effect. Cured fishery products should be held at temperatures below 70 degrees if the maximum length of preservation is to be obtained.

For the maximum length of preservation, moisture should be reduced to about 20%. This usually requires a long curing

period and some special equipment. Under ordinary home conditions, cured products with a moisture content of 40% are about all that can be expected.

The chemical cause of spoilage most common in cured fishery products is oxidation, or rusting. If the surface of the flesh is exposed to the air or the action of sunlight, it turns yellow to brown and acquires an unpleasant, rancid flavor. An increase of 18 degrees F. in temperature during storage doubles the speed with which this will occur. The most important physical cause of spoilage results from damage by insects, and rodents such as rats or mice. (Cockroaches? ?)

To best protect home-cured fishery products against these chemical and physical spoilages, they should be placed in tightly-closed containers and kept in a cool, dry place, preferably dark. Brine-cured products should be weighted down so that they will be kept below the surface of the brine. Smoked products should be covered with a thin coating of paraffin or dusted with fine salt, wrapped in oiled or parchment paper, and packed in tightly closed boxes.

CORNING, OR TEMPORARY PRESERVATION WHILE FISHING

Sport fishermen, and the casual angler frequently bring in catches in poor condition. Sometimes the fish must be discarded. The latter is especially true when the weather is warm and the fisherman is a considerable distance from home, or is unaware of a method by which fish may be properly handled when refrigeration is not available.

Such waste is avoidable if the proper procedure is followed: Bleed the fish as soon as caught by pulling out the gills completely, leaving no remnants. Clean the fish as soon as possible, scraping out all traces of blood and intestinal material. Wash the body cavity thoroughly. Thorough cleaning delays spoilage; if the body cavity is not thoroughly cleaned, spoilage begins sooner than if the fish were not cleaned at all.

Rub the belly cavity well with fine table salt containing one tablespoon pepper per cup. Rub salt into the flesh at a ratio of about one tablespoon to 3/4-pound of fish, dusting a small amount on the skin side.

Place the fish in a basket or box. A loose packing of green leaves around the fish has been found useful in inland regions. Cover the container with several thicknesses of burlap. The burlap must not rest on the fish since there should be an air space above them. Keep the cloth well moistened with water, since evaporation of moisture lowers the temperature in the container.

Treated in this manner, fish should remain in good condition for at least 24 hours when ice is not available. When rinsed thoroughly, the fish so treated are ready at once for cooking in any

way desired. If rolled in salt and packed away with as much of it as will cling to them, they will keep for about 10 days. These fish should be freshened for about ten hours in one or two changes of fresh water.

BRINE SALTING

Brine salting of fish at home requires a set of 1- to 5- gallon stoneware crocks with tight-fitting covers; 1 or 2 tubs or cut-down barrels for washing or preliminary brining; and, at least, 2 sharp knives, one large and one small. The family storing less than 50 pounds of salt fish, however, needs only a sharp knife and two 2-gallon stoneware crocks. Stoneware crocks are advised because there is little danger of leakage, foreign flavors are not absorbed by the container walls, and the crocks may be used later for other purposes.

The salt used should be pure and clean, free from dirt and moisture. It should be of a fairly small grain, "three-quarters" ground or "dairy fine". Many commercial salters prefer a coarsely ground salt, but a finely-ground salt is preferable in home salting as it forms into brine and penetrates the flesh more rapidly. Chemical impurities, especially carbonates and magnesium salts, should be present in less than 1% quantity by chemical analysis. These chemicals delay the brine penetration and give the product an acrid, salty flavor, whereas the pure salt imparts a much milder flavor.

The number of species salted commercially is quite limited, but almost any variety may be salted at home. As a rule, the so-called "lean" species are salted more readily; salt brine does not penetrate as rapidly in "fat" fish. With the latter, oxidation and rancidity occur more readily, and they need extra care both in salting and storing. When cured successfully, however, they make a salt fish of the finest quality.

Fresh-water fishes usually salted are lake trout, whitefish, lake herring, blue pike, yellow pike, catfish, perch, and pickerel. Others that may be salted at home are sheepshead, carp, suckers, buffalofish, river herring (alewife), eels - in fact, almost any fish of satisfactory size.

Salt-water fishes commonly salted at home are cod, hake, cusk pollock, bluefish, sea trout (or squeteague), channel bass, rock or striped bass, salmon, shad, sea bass, rockfish (rock cod), mackerel, sea herring, and Florida mullet. Others that are salted, but not to such an extent, are croaker, hogfish, scup, barracuda, butterfish, spots, whiting, grouper, halibut, sablefish, and robalo (snook).

The method of pickling, in general, is the same for all varieties. Smaller fish are split down the back so as to lie out flat in one piece with the belly not cut through. A cut is made just under the

backbone, and the flesh is scored with the point of a knife at intervals about one-inch apart. All traces of blood or membrane are cleared away, and the gills removed from the split head.

Large fish are split into two fillets, removing the backbone. The collarbone just below the gills is not cut away. The fish are damaged more in handling if this is done; and, if it is intended to smoke the brined fish, the pieces will often drop from the smokehouse hangers, since the skin and flesh cannot support the weight unless the collarbone is present. The flesh of the large pieces or fillets is scored longitudinally to a depth of about ½" at intervals, 1 or 2 inches apart. The cuts should not penetrate to the skin. Cut the pieces just long enough to lie flat on the bottom of the crock or tub.

Thick-skinned, spiny-finned fishes with large scales, such as carp, suckers, buffalo, black bass, channel bass, and catfish should be skinned and the fins removed. This is best done by making a deep cut along each side of the fin, which is then pulled away by hand. This method is much more rapid than the usual system of slipping, and removes the small bones in the flesh at the base of the fins.

The fish, whether large or small, are washed thoroughly in fresh water, after which they are soaked for 30 minutes to one hour in a brine made in the proportion of ½-cup salt to one gallon water to remove diffused blood from the flesh and to cut away slime from the skin. The fish are drained for 5 to 10 minutes after brining.

Make a shallow box about 2 feet square with sides 6 inches high. Fill this with dry salt. Scatter a thin layer of salt on the bottom of the crock or keg in which the fish are to be salted. Dredge each piece of fish with salt, and rub salt into the places where the flesh is scored. Pick up the fish with as much salt as will cling to it and pack in the container, skin side down. Arrange the pieces so that an even layer will result.

With large fishes, this is best done if the thick side, usually the one with the backbone, is placed next to the wall of the container. An extra piece may be placed in the middle, if needed. Pieces should overlap each other as little as possible. Scatter a thin layer of salt over the layer of fish, and arrange the next layer of fish in place at right angles to the preceding layer.

Small fish such as spots, butterfish, or croakers are packed in a ring with the tip of the head touching the walls of the container. It will be necessary to lay one or two fish across the center to keep the layer level. Stagger successive layers so that each fish rests on two fish of the layer below. Scatter salt between each layer. The top layer of fish, both large and small, should be packed skin side up.

The amount of salt used depends on the purity and grain of the

salt (less is required, for example, if the salt is of high purity and small grain), the season of the year (more salt is required in warm weather), size and fatness (large, thick, or fat fish require more salt), and probable length of preservation. The proportion of salt used runs from 1/4 to 1/3 of the total weight. A general rule is to use one part salt to three parts fish. In salting, be careful not to exceed the proper proportion - an excess will "burn" the fish, lowering the quality.

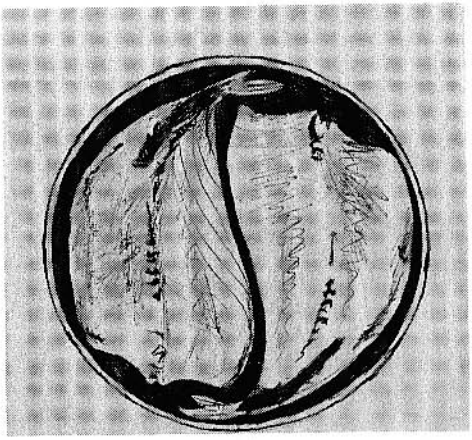
Place a loosely-fitting wooden cover on the top layer of fish, and weight the cover down. Fair-sized rocks or bricks, previously well-washed, make good weights. The fish will form its own brine. Small fish like spots or croakers may be "struck through," or completely brined in 48 hours; thicker, larger, fatter fish will require a week or 10 days. At the end of this time, with the exception of a few varieties, the fish are removed, scrubbed in fresh-saturated brine with a stiff bristle brush, then repacked with a very light scattering of salt between layers. Layers must be well-pressed down. Fill the crock or keg with a fresh-saturated salt brine and store the container in a cool, dark place. After three months, or at the first sign of fermentation - especially if the weather is warm - change the brine again. Brine-cured fish generally have kept longer, but should not be expected to remain in good condition for more than nine months.

Since herring are more easily obtainable than other fish by people living at or near the seashore in the North Atlantic and Pacific regions, they are one of the most important fish for home curing. Brine-curing them requires a separate discussion, however, as methods of cleaning, packing, and curing differ in certain procedures.

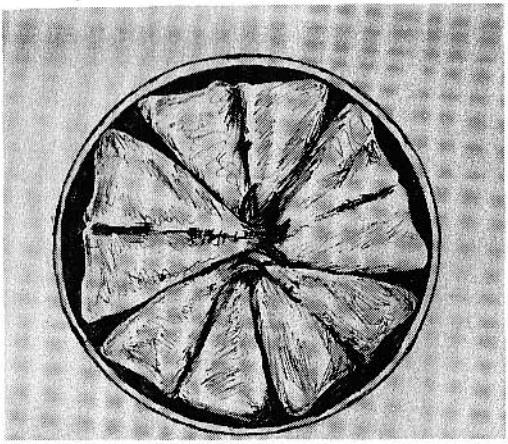
Herring intended for brine salting must be strictly fresh, in good condition, and thin or small-sized fish should not be used. They must be free from "feed" or other materials causing enzymic spoilage; and should not be bruised or crushed. Ice must not be used if a salted product of good quality is desired; instead the fish should be cured immediately on landing.

The herring may be brined whole (without cleaning), or they may be "gibbed" - that is, cut through at the throat, removing part of the viscera without cutting the belly. In gibbing, one takes hold of the herring by the middle with the left hand, thumb on one side of the head and fingers on the other, leaving the throat clear. A small, short-bladed paring knife is stuck through the gills, just under the gill cover and with the edge of the blade toward the gibber, and gives a sharp twist upward and outward. If the herring are fresh and the operation performed properly, the throat and pectoral fins together with the main gut and gills are taken out in a single motion. Before the knack is acquired, more than one motion may be required.

The herring are then well washed in sea water or salt brine, preferably the latter, stirring the fish about. This operation removes scales and leaches the blood from the flesh. After washing, the fish are drained for about ten minutes, or until all excess moisture is removed, thrown into a shallow box of fine salt, and stirred about until all the salt possible clings to them.



Method of packing large fish in container for brine-salting.



Method of packing small fish in container for brine-salting.

Scatter a very thin layer of salt on the bottom of a large crock or keg which must be tight and free from leaks. Take up a herring with as much salt as will cling to it, but no more. Place it straight against the side of the container, back down. Place two others in front of the first, their heads touching the side walls of the container, one to the right, the other to the left, straight on their backs, belly up, and packed as tightly as possible. Place a fourth herring in the middle between the two; and, two others, heads to the side walls as before. The head-end of the middle

herring should be alternated. Continue to pack in this fashion until the layer is completed. The rows must not be irregular, and the fish must not be packed on a slant or they will not be salted evenly. The space at the sides of the container where the heads touch must be filled. Two herring are placed here with their heads pointing in opposite directions. This leaves an even surface for succeeding layers. Enough salt should be scattered on top so that the layer is just covered.

Begin another layer. Pack each layer at right angles to the one preceding. The top layer should be packed with backs up and salted a little more heavily than the others. Fill the container with fresh 100% brine, and close tightly. Store in a cool, dry place. The brine should be changed at 2-month intervals if the fish have not all been used. Fairly fat herring will require a total of 35 pounds of salt per 100 pounds of fish.

In the next issue, we'll tell you about DRY SALTING and AIR DRYING of fish.

FARMING AFLOAT

.....JO ANNA BROWN

Imagine this; you're sitting in the cockpit looking up at the blue sky and fluffy white clouds overhead while the boat skims along at six or seven knots under spinnaker; you've been at sea for twelve days and have at least six more to go before reaching that next exotic port. It's about time to start thinking of preparing dinner for that hungry crew and you wonder what to fix to go with the mahi-mahi you caught earlier. Wouldn't a cool green salad taste good? But lettuce doesn't come in a can, you say. That's right - and even if it did, it would probably taste just as blah as most other canned food. So - why not grow it? (No, I am not suggesting that you sell the boat and buy a plot of land.) Sounds crazy, I know - and maybe it is - but I think it's possible to grow your own vegetables in flowerpots on your boat.

It seems to me that the two greatest limitations are weight and space. Dirt is heavy and flowerpots take up a lot of room, besides needing a very secure place of their own to ride out heavy weather. How much extra weight can you carry for this endeavor? 100 pounds of potting soil is a lot of dirt! (Potting soil is much lighter than "real" dirt, is disease resistant and is fairly inexpensive.) Traditional clay pots are heavy, but you can now buy styrofoam flowerpots which weigh virtually nothing.

The problem of space is a harder one to solve - and the answer must be based upon your requirements as well as the restrictions of your boat. But look around - I expect you'll find a spot or two that's not much good for anything else, but just right for a pot of peppers.

What can be grown in flowerpots? Well, of course, we've all heard of growing tomatoes on a windowsill. But how about peppers, eggplant, cucumbers, radishes, chard - and yes - even lettuce. What's for dinner? Eggplant casserole, with steamed chard and green salad!

Right about now, with our mouths watering thinking of all that good fresh food after months of dull, dull, dull meals out of cans, some spoilsport is going to ask, "But what about water? Don't plants need a lot of water to grow?"

Yes, they do, and you can't be expected to carry extra water for your plants. But it does rain most places in the world, and perhaps you'll have to become more diligent about catching rainwater if you want to grow vegetables. And then too, when most of us dream about cruising, we picture ourselves in the middle of an ocean or on an uninhabited tropical island; this is seldom the case in reality. Most of us are tied up at a dock with easy access to a faucet, or we are anchored off a town or village where water is available.

Will it work? I don't know. I am trying it now, but have barely started; my tomatoes, green peppers, eggplant and lettuce are still seedlings. It's possible that the yield will not be enough to make the effort worthwhile. But it seems to me that the goal is more than saving money by growing your own; I'm doing it for the satisfaction it will give me - and is giving me now - knowing that this is nutritionally, aesthetically, and spiritually superior to opening a can.

I will let you know how it goes. I have never successfully grown anything in my life (but I've had a few disasters) - so I figure that if I can do it, anyone can. I would like to hear from anyone who has tried growing vegetables on a boat; can it be done, what are the pitfalls, any special techniques you have learned. If you want to try it yourself, but don't know where to start, I can recommend the following publications:

Farming in a Flowerpot, by Alice Skelsey, Workman Publishing, 231 East 51st Street, New York City - $2.75.

Minigardens for Vegetables, U.S. Department of Agriculture, Home and Garden Bulletin #163, U.S. Government Printing Office, Washington, D.C. 20402 - $.30.

Little Plants for Small Spaces, by Elvin Mc Donald
Small Fruit and Vegetable Gardens, by Jacqueline Heriteau
Easy Gardening Projects, by Jacqueline Heriteau
How to Grow Herbs and Salad Greens Indoors,
by Joan W. Meschter

These four books are available from Popular Library, 600 Third Avenue, New York, N.Y. 10016: $1.50 each, or $6.00 the set.

RECIPES FOR USING SALTED FISH

If the fish have not been too heavily salted, freshening (rinsing and soaking) in several cold waters overnight or from 8 to 48 hours, according to the taste, should be sufficient. But should further freshening be needed, par-boil, that is put on in cold water to cover, and just bring to the boil. Then simmer, as boiling tends to toughen the flesh. The process may be completed by any method of cookery suitable for salt fish, such as broiling, frying, baking in milk or cream, simmering, or creaming, etc. Usually the fish needs more freshening for the first two cookery methods named above than for methods requiring milk or other combinations which tend to cover up the excess salty flavor.

By laying the fish flesh side down on a rack, the freshening will take place faster than on a flat surface. Running water will also hasten the process and save the necessity of changing the water.

Creamed Salted Flakes

1½ cups cooked cold fish flakes
2 cups whole milk
4 Tblsp. fat
4 Tblsp. flour
½ tsp. curry powder
½ tsp. Worcestershire sauce
pepper

Make a cream sauce of the fat, flour, and liquid. When smooth, add the seasoning and blend. Add fish flakes. Heat through. Serve on toast, waffles, or in ramekins. Strips of pimiento make a nice garnish.

Salted Fish Cakes

1 salted fish
6 medium-sized potatoes, diced
1 egg
1 tsp. Worcestershire sauce
1 Tblsp. butter
white pepper
bread crumbs

Skin and bone the freshened fish, cut in strips and cook until tender. Cook the potatoes. When the potatoes are tender, drain and mash fish and potatoes, add butter and seasonings. Add well-beaten egg and shape into cakes. Saute or fry in deep fat, 390 degrees F. Drain and serve hot with or without sauce.

Scalloped Salted Fish with Rice

2 cups cold flaked fish
2 cups cooked rice
3 Tblsp. butter
1 cup milk
3 eggs, well-beaten
pepper, paprika and pimiento

Lightly, but thoroughly, mix the fish flakes and rice. Place in greased baking dish. Combine the seasonings, milk and well-beaten eggs and pour over the mixture. Lay strips of pimiento across the top for garnish. Serve with relish or pickle.

It is a good idea to read a new recipe through several times, until you understand the process from beginning to end. Frequently you will find it possible to eliminate a step or two; certainly you can cut down on dishes used. In many cases the people writing cookbooks and recipes have a kitchen staff to clean up after them. Even if you have grown your own galley slaves, no one likes to wash more dishes than necessary, especially on a boat where just getting the water can be a chore.

For instance, in some recipes using spaghetti, macaroni, noodles or rice, the pasta can be cooked in the sauce simply by adding extra liquid.

All-At-Once-Spaghetti

1 lb. ground beef
1 medium onion, chopped
1 or 2 cloves garlic, minced
2 - 8 oz. cans tomato sauce
(or 1 can tomatoes)
2 cups water or other liquid
½ lb. spaghetti
1 cup grated cheese
pepper, salt and oregano to taste

Brown meat, onion and garlic in large saucepan or skillet. Add tomato sauce, liquid and seasonings and bring to boil. Break uncooked spaghetti in pieces and add slowly to the sauce. Cover tightly and simmer 25 to 30 minutes over LOW heat. Stir in cheese, or sprinkle over top until melted.

Beef, Cheese and Noodle Casserole

1 lb. ground beef
1 medium onion, chopped
garlic, if desired
1 can condensed cream of mushroom soup
1 soup can of milk

1 - 8 oz. pkg. cream cheese
1 can corn, undrained
1 cup water or other liquid
(add more if needed)
¼ cup chopped pimiento (optional)
½ lb. noodles, uncooked
salt and pepper

Brown meat, onion and garlic. Stir in milk, soup and cheese until well blended. Add remaining ingredients and cook until noodles are tender.

Tallarene

1 lb. ground beef
1 medium onion, chopped
1 can tomato soup
1 soup can water or other liquid
2 cups noodles, uncooked
2 cups corn
1 cup chopped ripe olives
1 cup grated cheese
salt and pepper

Brown meat and onion. Add all ingredients except cheese and mis thoroughly. Sprinkle cheese over top. Cover and cook over low heat 15 to 20 minutes or until noodles are tender.

Zucchini and Ground Beef a la Big Sur

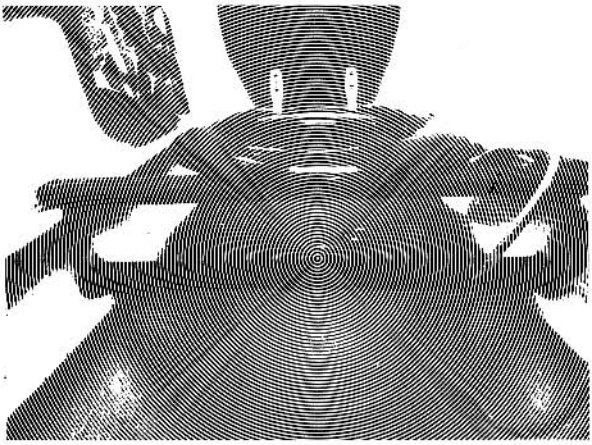
(There are no measurements given in this recipe. Use your own judgement.) Brown hamburger, onion, garlic and seasonings. Add tomato sauce and water - enough to cook the desired amount of rice. Bring to boil; add brown rice, uncooked. Slice zucchini and place in layers until the sauce bubbles around. Cover; cook about 1 hour. Sprinkle with grated cheese - let melt.

Of course supstitutions and additions may be made in the above recipes, depending upon what is available to you. Use your imagination - just be sure to add enough extra liquid to cook the pasta.

To keep these and other foods from sticking and burning, I find an asbestos pad to be indispensable. These can be bought inexpensively in most hardware stores and houseware sections of department stores (but are often unavailable outside of modern cities in foreign countries). The only disadvantage I find with them is that the metal ring around the edge rusts. Anyone know where to find asbestos pads with stainless steel edges?

HOW TO BUCKET AHEAD

.....JIM BROWN



The art and science of snatching-up seawater from on deck - with a bucket on a line - is really just a foot-in-the-door for other things I want to say. But the cruising sailor really needs to know the basics because when he gets away from the marina dock, no longer plugged-in to pressure fresh water for washdowns and such, then he needs to use the bucket. Skill at this seemingly simple operation is a sure sign of a shellback, and nothing pegs you as a lubber more than having the bucket snatch you instead of the other way around.

So here goes: First, you need a smallish bucket, very strong. A galvanized steel pail of ten quarts or less with rugged "ears" and a stout bail is the surest bet, but there are some special plastic ones around which are robust enough to last. These are preferred because their operation is much less noisy, and they don't scar-up the topsides. But don't leave plastic containers in the tropic sun - they'll fall apart.

Then the line. Splurge on a good piece of synthetic braid, at least 7/16" diameter, and twice as long as your boats freeboard. Splice or bowline this to the bucket's bail. In the other end throw a chunky eight-knot, and another one down about $2\frac{1}{2}$-feet from this, more knots at this spacing if you have a very high freeboard.

Now, how about a little practice. While the boat is at rest, step to the rail with the "snatchin' pail." If you are right-handed, use the port side at first, and hold the end of the line in your left hand with all the slack coiled with the bucket in your right. Practice dropping the bucket with a backhand motion so that the mouth splashes down facing forward at a good scooping angle. Keep

this up until the bucket really nosedives and is instantly sunk with a sharp glugging "pop." Got that? Then make a smart recovery; snatch that brimming bucketful of ocean up on deck quicklike! You'll see why later.

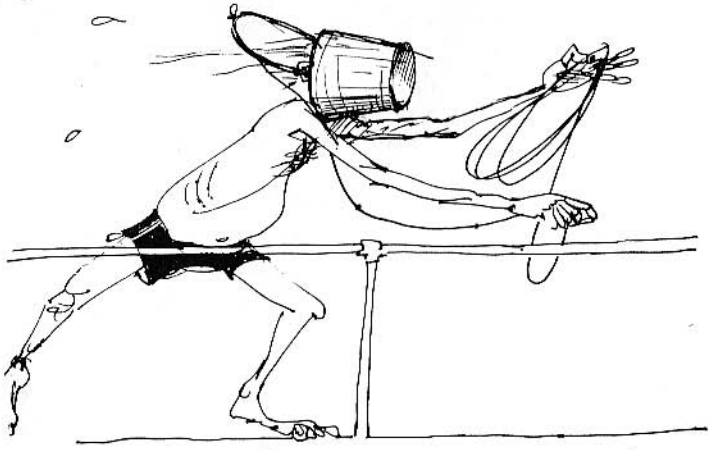
Next, imagine that the boat is moving forward at about five knots. Practice throwing the bucket forward to get the same instant sinking actions just as your slack runs out. Concentrate your mind on a clenched left fist; hang on to the line!

Once you've learned to bucket ahead while the boat is at rest, then choose a spot along the portside rail where you can wedge a knee against a stanchion, with good footing, and brace your left shoulder against something high like the rigging. Practice from this position now, imagining that the boat is really moving, and that you are going to have both hands occupied trying to boat that bucket!

RIGHT WAY

Now it's time for the real thing. You and the crew have just sailed the anchor up. The muddy chain is coming in fast and the geona has filled, causing the boat to quickly gather way. You need water, and lots of it, to keep from dumping that rancid harbor-bottom mud into the chain locker and stinking up the ship. The ocean is streaking by the bows, and there are two of you with snatchin' pails working in rhythm. There's a loud "pop" and a big splash together every five seconds. Neither of you miss a stroke as muddy water pours from the scuppers and clean chain passes down the pipe. The boat surges headlong into the swell, and above the renting, rushing of the cutwater you faintly hear commotion in the cockpit as they prepare to tack out through the heads.

The anchor breaks the surface now, and it's about time. You're bushed because on this occasion you're working on the starboard side and you never were a very good ambidextrous snatcher-upper. One or two more grabs now - "hard alee!" you hear from the cockpit - the bow swings up - your throw is long and too far out - the bucket passes underneath you on the bow wave - you hesitate because it landed wrong and is still slowly filling - your recovery is late - the bucket gets behind you and out to leeward on the turn - the ship suddenly stands up from her heeling and leaves you hanging outboard - you haul - the bucket digs and quickly yanks you hard against the shrouds - the second knot and then the last are snapped through your wet grasp in two shoulder-dislocating snaps - as the bucket sinks in the wake you unwrap your hand and you feel your head to find that you have lost your cap. Cries of "bloody lubber" come from the cockpit, and you swear to yourself that it's a lucky thing the skipper hasn't lost more than a bucket from trying to sail the anchor up and keep the chain clean at the same time.



WRONG WAY

Surely this is an extreme example of the skill required to bucket ahead. The usual "snatch" is much more relaxed than that, but much more frequent than sailing out the anchor. Come to think of it, the most usual use of this technique happens at least once a day for everyone aboard. It is not bucketing ahead to which I refer, but bucketing a head.

Now this gets to be a touchy subject, because bathroom humor always is. I'm not trying to be funny when I express a firmly held opinion that the bucket is the only "head" worthy of consideration in a serious, subsistence-level sailboat; or any kind of boat where the owner undertakes to be truly self-sufficient (and that doesn't mean hanging out in the marina).

Ever since Sir Francis Crapp invented the flush toilet there have been efforts to design and manufacture marine versions. These

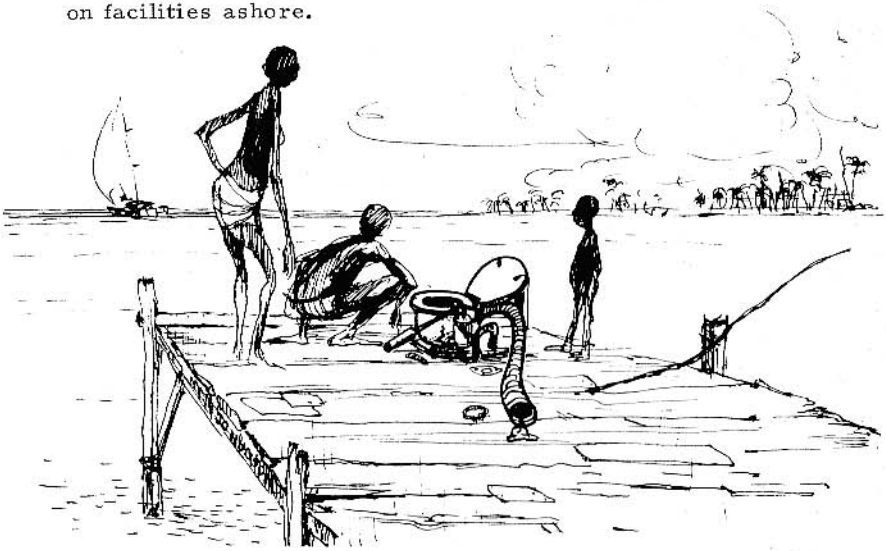
devices have been responsible for more sinkings than submarines and very often are the cause of a pervading stench and a slovenly standard of sanitation aboard yachts. Sure, they can be made to work, but they can also be made to not work. Discard in them a scrap of something slightly less extrudable than shit, and there you are with a constipated contraption. Fixing a clogged marine head is the most put-offable job on board, but the longer you wait the worse it gets. To disassemble a bunch of Rube Goldbergian bronze plumbing wouldn't be so bad if you had good light and ventilation, and a steady bench. But when crouching in the bilge of a heaving vessel with no room to swing the wrench, and finding that the parts are pressure-packed with the purest form of putrifaction, one begins to wonder just how "convenient" such devices really are. You can breathe through your mouth to avoid the smell, but ammonia vapors cause the eyes to run. If you have never been seasick, now's your chance. The bowl is handy - but remember that the passages are plugged! Eventually you'll find the source of trouble; something like a wad of hair or a toothpaste cap, or just a simple little kidney stone. There! It's fixed, again.

When breakdown is added to the list of other disadvantages like cost and weight and danger and dirt - plus the very fact that the whole business is required just to discard waste by pumping - instead of dumping - well . . . what about a bucket?

Right here, now, we should put to rest the matter of pollution from yachts. Pollution from anything is a matter of concentration. Except in city-sized concentrations, sewage is not a pollutant (did you ever see a whale turd?). If you wish to use on-board facilities in a crowded area where holding tanks are required - then of course you need a marine head and a holding tank. But for those rare occasions when the serious travel-sailor finds himself in such a pickle, maybe it is just as well to use the facilities on the dock and spare your boat the humiliation of carrying a cargo of crap. Especially since the pump-out facilities are often little more than a re-route to the harbor water anyway. Your discharge will perhaps be somehow processed enroute, but it also adds your private contribution to the volume of public waste. When considering the energy expended in the re-routing and processing, and the materials used in constructing the dockside pump-out portion of a metropolitan sewage system, one can't help but wonder about the bottom-line environmental benefit.

Certainly there is nothing like living on a boat to make one aware of the enormous volume of waste and trash generated by a single human being. Pumping, after all, is more work than dumping. Holding tanks have a way of filling-up much faster than is expected, and the "miracle of modern packaging" is best understood by watching your galley's tiny trash container miraculously overflow. One's awareness of this waste - its staggering amount - is one of many troubling revelations that come to the seasteader.

Putting it into pipes or hauling it away to huge holes in the ground is no real remedy, one begins to see. Only through a basic change in lifestyle can one dispose of his dependence on disposable packaging, and pipes. The solution to sewage is to de-concentrate. Take yourself and your bucket to someplace where - because you are no longer part of the problem, maybe you have found a solution! Society does not yet recognize that cruising sailors are, by providing for themselves on boats, reducing the pressure on facilities ashore.



If you can accept this logic on pollution (and if not, how about giving us some feedback?), then let's continue now and have a look at the design requirements and use technique of the bucket head.

The head compartment itself will determine whether the bucket can be employed. Ideally there will be a hatch in the deck directly over the compartment, and it helps a lot if this hatch is forward far enough (or the boat narrow enough) so that the bucket can be dumped overside without requiring the "dumper" to climb out the hatch all the way. In larger boats, however, climbing out will be required.

In any size boat, the head compartment wants to be large enough so that a full-sized adult can maneuver in there while wearing four layers of clothing under his sou'wester. Ideally there will be an adequate dressing space adjacent to the head where heavy clothing can be dealt with and stored. Jo Hudson's "Oh God!" cartoon illustrates what it is like to use a head the size of a broom closet; this poor frozen fellow is finishing up, but finds that he can't reach, and that there is one layer of clothing he forgot.

Besides size, and a forward location, and the hatchway; there is another requirement of the head compartment; ease of cleaning. Depending on the boat and its construction it would be very nice to have all edges rounded and the nooks and crannies filled. In our plywood boat we have taken care to completely seal the whole head area with several layers of epoxy. Then we sanded, and primed-and-painted with epoxy too, for the most "sanitary" surface we could produce. Because the head is the ideal place to arrange a shower - which we'll talk about later - the compartment can be sealed from deck to bilge. A fiberglas-lined sump in the bilge is required for collecting shower water to be pumped overboard. This arrangement separates the "bathroom" from the rest of the boat and isolates the problems where they can be overcome. A sealed compartment, complete with hatch, also provides a "wet room" for containing soggy sails from the foredeck, a lifeline-load of laundry caught by the squall, or the bundle of bedding which fell overboard as you were boarding from the dinghy but got caught by the wake of a passing power-cruiser.

This hatchway is the right place to stand, up to your armpits in protection, while struggling with the storm staysail in a gale. Spray or rain won't jump into anybody's bunk, but if a big wave overcomes the bow you can mostly block the opening with your body, and later drop down into the "wet room" knowing why it bears this name In this view, the forepeak is no place for a bunk.

And another critical advantage of having a "wet room" underneath the forward hatch is for the ventilation it provides! The hatch can almost always be left ajar. Rain and spray may accumulate in the sump, and be easily pumped out. Our hatch lock is on a short chain, which allows the hatch to stand ajar when the boat is idle; the best and cheapest ventilator going.

This head compartment needs a hatch that can be dogged from both sides, but it does not require doors down below. Good shower curtains, ruggedly installed on sail track, will confine the spray and offer privacy sufficient for all but the most genteel. Gentility is one of the many things that tend to go away as a sailor becomes aware of normal human animalness. If you're the type that turns up the radio and lets the water run to cover-up strange sounds in the sandbox, then you're in for a rude change when you try seasteading.

The same goes for dumping the bucket. What's the difference if your deposit goes over the side in one swish, or if it gets noisily pumped through the "joker valve," emerging in the form of extruded ribbons instead of honest lumps? I mean really, what's the difference, friend? If you think you might offend your neighbors, you can add a shot of Clorox to the bucket, for odor control, and empty it at night. Dumping the bucket is hard to do in heavy weather (which is its only disadvantage) but can always

be postponed with bleach. Or, if you're sailing hard to windward for days on end, it won't hurt to heave-to or put the boat downwind just once a day for long enough to dump and rinse. But remember - if you're moving, "bucket ahead."

There are certain other design considerations to this type of marine toilet. The thought of a bucket head immediately brings one to fantasize on the grim sensation of sitting on the bucket itself; a tippy hollow seat that jabs you in the cheeks with cold metal "ears." Well, that's not the way to work it out. Just get yourself a nice toilet seat and mount it in the boat all by itself, with space beneath for the bucket; the bucket wants to be well constrained and well centered underneath so it can't come adrift. A very nice seat can be made from good cedar or mahogany, carefully sealed with epoxy and varnish. (I can even suggest where to buy one like ours, which is handmade from tropical cedar; at the far end of the west wing on the second floor in the Terminal Market in Guatemala City.) It helps to have a bit of non-skid on the top of the cover because the seat-top will often be used as a step when emptying out through the hatchway. The hatch needs to be large enough to admit both you and the bucket; and the seat-hinge should be mounted far enough from the bulkhead (or whatever) so that in the open position it leans back and stays definitely open against something solid, so you can kick-back in comfort.

In this positon you may expect to do some wonderful sailing. The sounds of the bow wave come through the planking, and with the hatch open wide you can gaze at the sails and the sky for hours. Or with the company of a good book - something like the Guinness Book of World Records - this is the best place in the boat for "sitting out a calm" (a new world record?).

When it's not calm, the entire installation will be subjected to heavy working strains, and so must be robust enough to withstand really being kicked around and jumped on. Solid steps are needed to give secure footing for climbing out the hatchway. The paper dispenser should be located in a well-protected sanctuary, probably high up underneath the deck and away from the hatch. Otherwise the whole roll will surely get soaked or knocked-off because this hatchway may be used when struggling with headsails in a blow. A word of warning to the crew will result in a great saving of toilet tissue. It seems that with the dispenser mounted high, there is some temptation to tear-off your wad and leave a long leader hanging from the roll. But watch out, because if you open up the hatch while the boat is reaching in a gale, the wind will grab that leader and siphon-off a thousand perforated squares to leeward in a spectacular streamer; a fitting tribute to the innate fallability of man.

The toilet seat itself will at times be subjected to at least two "g's" of the heaviest crewperson aboard. Motion in the forepeak

can be particularly violent; when beating to windward in confused seas one may expect to encounter "negative g's" (flying) at one moment (as the boat dives over a crest) and at least two positive g's the next (as it pulls up in the trough). It is for times like this that the bucket needs to be well constrained to avoid - uh, you can imagine.

Some larger boats have their head compartments located closer to amidships to avoid this motion, but then there is no hatchway and alas, no bucket; but bunks in the bow instead (what a place to try to sleep!).

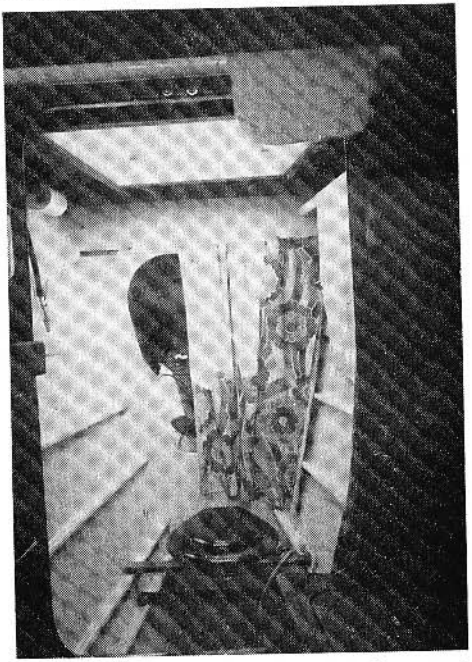
All in all, weighing the advantages against the disadvantages, and considering the conditions most of the time, we have found the forward compartment and the bucket head to be quite satisfactory in our 31-foot cutter SCRIMSHAW. But this facility becomes somewhat more sensible when combined with our garden sprayer.

Yes, garden sprayer. We use a Sears Roebuck model 786-15371 two-gallon stainless garden sprayer as a source of pressure-spray for fresh water showering. The beauty of this device is that it is actually designed for precisely directing an adjustable spray (from solid stream to full atomize) with instant off-and-on for the most economical use of fluid. With 1½ gallons (heated water if desired) we find that an adult can have a generous scrub-down and a satisfying rinse, except for washing and rinsing long hair. When combined with bathing in the sea, that gallon and a half will do four four persons!

This is how it works. Fill the tank three-quarters full (leaving space for compressed air) by pouring water from a "jerry-jug" into the built-in funnel-top on the sprayer's tank. (Combine heated water from the galley's teakettle to suit; in cold weather, a random shot of atomized hot water into the head/shower compartment will take the chill away.) Close the tank with its combination cap-and-air pump, and work the pump to pressurize the tank with air. Then secure the tank in its permanent (and very secure) mounting position in the compartment. Spray yourself off, soap down and scrub (this is done with regular fresh water soap). If the time and place permit, climb out and jump overside to rinse (I always check the sumlog pickup and the transducer at this time). Some of us are tempted to do this rinsing in the nude, but if we have any neighbors, we always wriggle-on a swimsuit before climbing out the hatch, or bathe at night. We've seen many illustrations of perhaps unintentional offensiveness by ignorant or insensitive sailors. This is a subject for another time; but you may assume that nudity on yachts has caused some nasty reverberations, which are so easy to avoid.

Now, you're in the water, rinsing. How do you climb out? If you use a portable boarding ladder, be sure to hang it on the rail

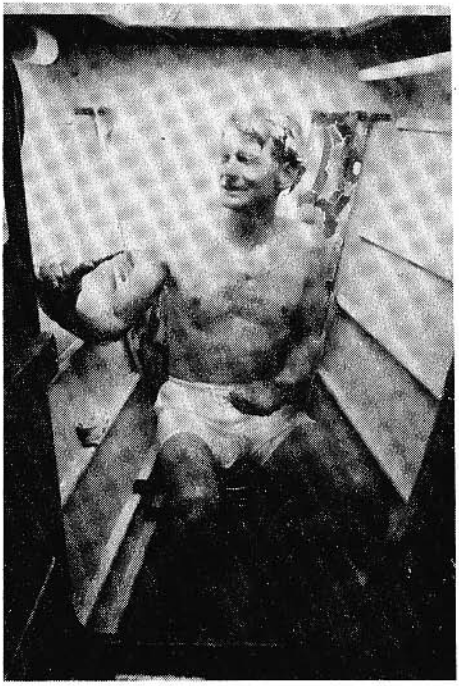
before you start your bath. Actually, a cruising boat deserves a permanently installed boarding ladder. These can usually be arranged on boats with transom sterns, and are best when combined with an outboard rudder which has a small toehold step fastened to the rudder about 18-inches down. The underwater step, together with the permanent, ruggedly-designed ladder, will allow even the less agile persons to gain access to the deck. This is a very convenient courtesy to offer visitors who swim out from the beach; but more important it could save a tragedy in the case of man overboard.



Scrimshaw's head and shower. Bucket is constrained by simple cross-stick. Garden sprayer is hidden behind bulkhead at upper left, nozzle is visible. Note position of tissue. Also shown is shower curtain and track, two-way hatch dogs, and large towel hangers.

But the most frequent use of the boarding ladder will be for swimming, and skin diving and bathing. After your rinse in the sea, you can hop-down the hatchway (without dripping water through the cabin) and enjoy a fresh water rinse.

And now's your time to have a shave. If it seems to you that all shellback sailormen have beards, maybe it's because they have no convenient way to shave. But then again, maybe it's because they like their beards. Very well, but I have a theory about bearded sailors; I think they would have a better time ashore if the'd go cleanshaven. Sound prudish? Maybe so, but I've tried both. The truth is that many foreign folks have an understandable



Author demonstrates the refreshing use of the combination bucket-head and garden-sprayer shower.

resentment for what the Latins commonly call "heepies." Here again, we could get into a subject that belongs somewhere else, but for now we can accept that things like nudity, beards, long hair on men and skimpy clothes on women are often viewed with prejudice in faraway harbors. It doesn't seem fair that a bearded man can't go ashore and make the same friends with the same ease as a man who shaves; one would think that the individual's deportment should speak louder than his looks. But it turns out that looks are part of deportment, and many well-intended travelers get turned-off by a feeling of unwelcome just because their look-alike forerunners have made somebody mad.

If I understand this anger, it would be described as resentment for subversion. A cruising sailor has access to far-off beaches where huge culture-waves from the "West" are crashing ashore. Well-established ways are being suddenly displaced. Mature societies which have managed to control themselves for centuries are threatened with accelerated change from a source which seems lacking in control. As I understand it, these views are

held by older people who become alarmed when bearded vikings and bikini-clad sirens slip ashore with money and mores which may subvert the local youth.

All of that gets pretty distant from throwing a bucket or taking a bath, but I hope it helps the reader understand why the writer shaves when he is cruising. A clean face makes for a better trip - that's all I'm saying.

No, I'm saying something more, right now. If the reader gets the feeling that the writer is a fastidious fussbudget, let me boast of being just as raunchy as the rest when it's time to be a bum, or sail "all standing" (without ever taking off your storm gear) for several days on end. At times like that, which are rare indeed, the only part that really needs a wet swipe once a day is the anus, because otherwise the itching drives you up the bulkhead. But we're talking about seasteading here; full-time self-sufficient living aboard. It really helps to have pressure fresh water in the head for all occasions. Any inquiry into why so many disillusioned people quit cruising would reveal that a primary cause is lack of facilities for achieving even a modest level of personal cleanliness. This is especially true in the case of family crews. This whole yarn is to suggest how such facilities might be provided on a boat without installing a bunch of costly, complicated gee-gaws which require a full-time electro-mechanic to keep them operating. This is not fastidiousness we're following here; it is a basic, minimal standard of sanitation. I contend that you've got to have it on your floating homestead. If you agree, then let's continue:

Shaving with fresh water - even if it's just a squirt - is lots easier than with seawater. With a little practice the mirror becomes unnecessary; but you'll need a large supply of good blades. If you hold out for your electric shaver, better carry a razor also because it is much less prone to breakdown than tiny little motors and great big generators.

Many salty sailors simply go without fresh water bathing, which is not a bad idea if you don't mind a clammy skin and a gummy bed. Or skin infections. Lots of crews have lots of trouble with their hides, especially in the tropics where "skin ulcers" can really ruin your fun. I talked with an Arctic-expedition doctor who explained that the old sailors' scourge of "seawater boils" really is caused by seawater. Caustics in the water sterilize the skin; this kills off a natural culture which protects us against infections. It seems to vary with the individual and the location; if some of us don't rinse off the salt once in a while, here come the infections. Our family has had its share of trouble with "staph infection" anyway, and we feel that the garden sprayer has helped control this problem in SCRIMSHAW.

There are a few other little implications to the bucket head and garden sprayer shower combination: One is that rinsing off the

salt helps reduce the laundry problem. If a swimmer smothers himself in a clean towel right after climbing from the sea, that towel has had it. Save it apart for drying-off brine, because it's no good for using after a fresh water rinse-off. The same goes for clothing and bedding; salt on the skin will make everything clammy and "unclean" to the feel.

Next comes sanitation in the compartment itself. With the sprayer there, it's a cinch to squirt the crannies and the toilet seat. All the soap and dirt and hair and whiskers go into that special fiberglas sump in the bilge. From there it is easily pumped out with a diaphragm pump after each bath. The bucket itself gets rinsed in the sea each time it is emptied, and about two inches of clean water is left standing in the bottom. Whenever it needs a scrub, it can be done on deck, and while you're scrubbing you may satisfy yourself that the job is infinitely more pleasant than trying to clean around a gargantuan contraption of porcelain, pumps and plumbing that is bolted-down deep in the bilge. And don't forget to revel in the fact that nobody has yet managed to plug up a bucket!

The garden sprayer has other applications besides in the shower. We've used ours for a variety of cleaning operations such as blasting crud out of hard-to-reach cockroach castles, and rinsing off the bottom of the boat to remove salt before applying fresh bottom paint (while beached between tides far from any garden hose). We've used it for the cleaning of mechanisms and for rinsing the diving gear. We've loaned it to other boats for back-flushing clogged plumbing such as sink drains, cockpit scuppers, engine cooling systems and - you guessed it - heads! The sprayer is a seasteader's universal source of pressure water.

But water it requires. If the time and place demand that you be really strict about any optional use of your fresh water supply, then save what's in the sprayer for emergency standby. But as far as consumption goes, this gadget is more miserly than a spongebath. In the tropics, when we are in-and-out of the water a lot, we find that one 5-gallon jug will feed the sprayer four four to five days. That gives the four of us a rinse-off every day, and includes at least one real shave and shower for all on that five gallons. In coastal cruising, that amounts to five or six extra jerry-jugs per month that you have to fill, either by catching rain or by hauling water from shore. Not a bad price for keeping clean and feeling "human."

The sprayer costs $35 from Sears, the toilet seat you can remove from your pump-type head, and the bucket you should already have. In fact, we carry several; we lost a few before we learned how to bucket ahead.

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