O.Z.L. Yale University
New Haven, Conn.
March 9th, 1951

Dear Dr. Lambertsen,

Thanks very much for your last letter. I am almost happy that you did not have the casting I had asked for. I have designed and built a shut-off valve assembly that is pretty good, though not as good as yours.

I am almost finished here in New Haven for the time being. We are shortly going to Jamaica in the British West Indies. I have an excellent chance to do research there on the physiology of reef and zooplankton communities. I shall also be doing some teaching of physiology in the new University College of the British West Indies. It finally seems that there will finally come the opportunity to use my diving equipment in tropical neritic waters for collecting, ecological surveys and photography. This is still the real purpose for my having gone through all this "trouble" anyway, though it must be said that the work involved in the correct design and construction of new outfits is in itself a wonderful experience, and is a hell of a lot of fun.

Much of the work I've done at Yale was done by me in a good machine shop with all the necessary help I needed, and I could work to my heart's content changing plans as they needed it. All this I could not do at Penn or Chicago. I have already mentioned the mouthpiece shut-off valve assembly which seems much more satisfactory than the Haidbrink assembly used till now. Right now I am working together with a very skilled man on the design and construction of a much improved (we hope) face mask. This will be molded in rubber and will have a very large face plate with the visibility increased several hundred percent over that of the M.S.A. Mask. We are not planning to circumvent the nose because that would introduce complications at present beyond our simple means, but I think that this is a price well worth paying for the increased visibility, which is so important when doing u.w. photography for instance.

I seem to remember in this connection that I ran across a statement you made in the "syllabus" for the #10 Lambertsen outfit that you were working on an improved face mask, and also on light-duty sports outfit. Has anything ever come of these projects? I hope that I am not being too forward in asking about what may conceivably be confidential.

Recently I modified your basic design somewhat and built an outfit in which the cannister and the lung are both located entirely dorsally with only the O2 tank remaining in the front as before. Due to the lung design I had to use, there had to be a good deal of ingenious finagling and the thing can stand a good many improvements which will have to wait for later. I have not yet given it U.W. tests, but on extended dry dives its performance was superior to anything I had before, breathing resistance is particularly low. I suspect that the U.W. stability may leave something to be desired due to the dorsal position of the lung.

Also in the works is an "orthodox Lambertsen outfit" with horseshoe lung etc. This ought to be my definitive outfit for the time being.
From all the foregoing, you must have the idea that I am the proud possessor of at least half a dozen diving outfits. This is unfortunately not the case. As I kept changing designs, old models were cannibalised for their useful parts, others were rebuilt and reused. At this time, I have therefore only one completely operative outfit at one time. I hope that when I get through, I shall have two simultaneously usable outfits.

Below, I have made some sketches of some recent brainstorming, and I hope that I will hear some critical comments from you.

yours sincerely

Tom Goreau

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