CONNELL APPARATUS

Mch 9/39

Dear Dr Apgar:

We have evidently been grinding in the shunt valves too tight & without the right lubricant. The lubricant we have now found, a boiling water proof, soda lime proof lubricant used in packing marine propellers & water pumps. We will send you a box & fix up your "Stratos" for good & all. The new piston installed by Puritan may leak, for each must be lap fitted (only not so tight). The status of intercoupling is to make a sparkless high resistance cuff by a couple of winds ~~on pat~~ of 8 or 22 gauge on patients arm & anesthetist wrists & onto the knots of these clip a ~~rubber~~ bulldog clip, connect to insulated wire that originates from the machine. This is OK at 15% of room humidity. Your long bandage is OK at 30% room humidity.

I have done a great deal of work in starting "explosions" i.e. igniting Oxg acetylene. Never has the gauge given an igniting spark. The self generated static walks thro the metallizeds

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high resistors of Prof Hoilon of the M.I.T. as the nobody was home & ignite gas every time.

Another unique finding is that with a high charge of static on myself, I can polarize a small metal body insulated from myself or can polarize the wet surface of rubber & get a spark to the "machine". This then was the source of your spark. For disagreeing with D Williams, I do not think that dry rubber (unless laboratory dried surface) has the generating capacity to make & hold an igniting spark. Whereas a damp bag interior can be polarized & spark O.K. just like a leyden jar.

What I want especially from you.

(X) 1. Was there a metal neck on the Heidbrink bag which blew. If so the spark is easy to explain i.e. charged from the anesthetist. Or if there was rubber to metal, & the anesthetist hand was distant from the (Y) anesthetist apparatus & well insulated by the ~~metal~~ apparatus & well insulated by the bag. Then we can best assume a polarization of wet bag interior to yield the fairly substantial sparks necessary to ignite I have not been able to ignite with mere gloves or St Elmos fire, or phosphorescent (in the dark) discharges.

Please answer (X) & (Y) Sincerely

Karl Connell.