

Tracy Jr.

5/12/84

Dear Family:

I just got back from a temple assignment and stopped at Dad'd to use the computer to type my letter which was due last week. Since I'm not familiar with this "word juggler" program on his Apple IIE, we'll see how much time I save. Had a nice thought while at the temple: even though we know that not all for whom we do work are ready to accept it or will ever accept it, if we are diligent in doing ordinance work for the dead, then when we die and go to the Spirit World, we will have a nice referral list of people to contact-- people for whom we did work on earth and to whom we can say: "look, no-one else on earth ever cared for your memory, but we L.D.S. went to the trouble of looking up your records and doing your ordinance work, so the least you can do is listen to us."

In early April Mega paid my way to a meeting of the American Vacuum Society in Sad Diego for a week, and I took Betsy along, since there were only four talks I was really interested in. We left Tracy & Zina home with Spencer (Betsy's brother Geoff spent the night there also) and left all the other kids with our close friends, Doug & Donlu Thayer, who with their five had eleven. Donlu came down sick after two days and Mom came to the rescue. Grandparents sure can be handy! What a lovely place San Diego is! Beautiful climate, pleasant sea breezes, moderate the whole year round, not especially crowded, no smog, and all the attractions of the Ocean. We went to one area where a breakwater had been donated by Mrs. Scripps (of the family which funded the Scripps Institute of Oceanography) and watched sea lions frolicking in the surf. We also went to Marine World to watch the amazing animal shows: the killer whale was especially impressive. We went _____ Point, which overlooks the Naval installations and the Baja, and watched a destroyer come into port, went to Balboa Park and visited the art museum, examining priceless masters as close as you wanted, but we didn't have time for either of the zoos, the space museum, etc. Also visited the L.D.S. visitors' center honoring the Mormon Batallion in "Old Town". We had lots of excellent cheap Mexican food. I know where I'm going to live when I retire.

(The talks were on low pressure "diamond-like" coatings.) There continues to be a lot of interest in these thin amorphous coatings, which are formed by high everygy deposition methods, chiefly ion beam plating, on a variety of substrates. They are not diamond, but are truly amorphous, and recent work has demonstrated that the layers contain lots of hydrogen, almost 1/1 with respect to carbon. But except for the C-H bonds, nearly all of the other bonds are tetrahedral, as they are in diamond, so these layers are essentially "super" polymers with no graphite-type bonding and many properties similar to diamond. Chief interest seems to be for insulating layers in special integrated circuits, and as protective coatings-- the stresses in the layers are so large that they can't get coatings thick enough to be valuable for wear protection or for cutting tools. My low pressure diamond research is still directed at seeded growth of true diamond-- first with an eye to inexpensive grit production-- later I'll try to produce polycrystalline layers.) Lately I've been spending afternoons up at Dad' shed where I can work without interruption, and if I can succeed in continuing this habit, I'll finally have found how to spend half my time on low-presure diamond, as Mega has promised me. (This week I've been working on a new idea for high-speed lapping of sintered diamond-- the lapping is the holdup in production right now.)

Mega really has a lot of potential for the near future, but only if we get the infusion of capital that's necessary to exploit our new products. The new polycrystalline CBN product developed by Jean-Michel Cerceau and me looks really exciting: it has the best properties of both G.E. & DeBeer's products (G.E.'s has greater wear resistance, but DeBeer's has greater temperature stability) and outperforms both. I wrote the first patent (with Jean-Michel's name first) last week and will be writing the second (for a key improvement I developed as a result of an idea received while writing the first patent) next week. Whenever we demonstrate CBN cutting of hardened steel (a material which formerly could only be ground), the machinists who see the demonstration feel like a whole new world has been opened for them. Our own machinists insisted on keeping our first samples for their own use! Duane Horton and Gary Peterson have found a very promising new technique for molding tiny cubes of polycrystalline grit, and preliminary test of this material show that "Megagrit" can potentially replace a large fraction of the single-crystal "saw grade" diamond now in use-- this is the large crystal that takes 1/2 to 1 hr to grow in the press and for which GE and DeBeers have made such huge investments in Ireland. It would be sweet revenge to penetrate that market, which, interestingly, has seen no price erosion, while the price for products we do make has completely collapsed. Now that G.E. has moved all their production to Ireland, they are promoting a bill in Congress to lower the tariff on imported polycrystalline diamond, which is now at 6%. Myself, I'm a free-trade man, (except with contries using slave labor), but it burns me to see these guys use the advantage of the tarriff agains DeBeers all these years and now that they make their diamond off shore, try to eliminate the protection. Incidentally, it appears that Christenson-Norton, after stringing us along for so long with the prospects of their becoming a big customer, but never paying a dime for any of the material or information they're received from us, is now going to

build a diamond manufacturing plant in Red China. The Communist government is only too happy to have foreign capitalist help them exploit their slave labor.

Smith International continues to look like a promising buyer for Mega. We also have two other drilling companies looking at us. Last week, while David was in Europe, I met the director and president of Cogema/SICN with Duane Horton to explain to them what was going on with Smith and assure them that we would continue to honor our contract with them. They would rather see us remain independent and are willing to assume a minority share in the company to help fund continued R & D, but Smith is taking a positive approach to the Cogema contract and thinks that it will be also in their own best interest to continue, and even expand the Cogema relationship. At any rate, we've agreed to sit down with both parties before the sale goes much farther, and that could slow it down a bit, but I was impressed with the pragmatism and reasonableness of Cogema. Smith wants continued outside sales and is talking about expanding all of our product lines and even continuing outside sales to drilling companies, while developing a separate division to develop proprietary products just for Smith. This separation of functions will, I hope, give David and me greater freedom and opportunity than we presently have-- if we go with the new division. David will probably head the new division, because of his long-time interest and many ideas in drilling applications, but I may be required to stay with the division headed by Duane, since that group would service the Cogema contract and Cogema views me, rightly or wrongly, as a key research man. One thing is for sure: once the company is sold, David & I have no more leverage as stockholders, and we may have a much harder time implementing our ideas-- especially in the division to be headed by Duane. If I'm required to go with that division, I don't know how long I'll last. Duane is just too cautious, too suspicious, and unable to take large risks or deal with rapid expansion-- an example: When I sold my low-pressure diamond ideas to Mega and thereby agreed to stay with Mega three more years (now 15 more months), he required Betsy and me to put up all of our Mega stock as collateral in case I should break that agreement. Another example: it has taken me two months and endless go-arounds to get approved a \$20,000 vacuum furnace which we have absolutely needed for six months. My first assignment as a green technician at H.P. was to research a \$250,000 epitaxial reactor purchase-- and management took my recommendation without batting an eyelash. (I confess that I later learned that my recommendations happened to coincide with management prejudice, however).

I do want you all to know that I am very thankful for David's proposal for the Hall family (except for Mom & Dad) to gift me additional stock to provide me with a "parachute" in case things become intolerable, and I am grateful to all of you for your willingness to accept his proposal. I have worked hard to help increase the value of the company, and I am very grateful for your appreciation. I do believe that Smith places a high value on its employees and think I will be fairly treated by them, whatever happens, but it is in some ways sad to sell at this time. If we had been able to attract the right kind of investors and agree upon a faster growth plan--and one which provided for employee participation in ownership or profits-- the future value of the company probably could have increased at a much higher rate, and we would have all benefited greatly. But I think we will get good value for our stock-- especially in light of what we have put in for it. Incidentally, all this stuff about the sale is very confidential.

Mom and Dad. Pg I. (Although I don't see why I should give Dad credit when I cannot get him to write. That is probably a relief to him, as I doubt if he would be very interested in taking "credit" for my prose.

My investment in Dadecor looks like it finally might terminate. I say terminate, because at this stage I dare not say "pay off". The 2500. I have in Bonnyview, according to the latest blurb from Dadecore, should be paid off by June 15. Their last pay off gave the investors 40% not counting the tax writeoffs. We'll see. I have money invested in Oakcliff Village South, which has been sold as condominiums, and is now looking for secondary market money. This will be the slowest to close as the secondary money market is at present under a big investigation, and so the whole business is slow right now. I have some money in Southdale, which has been sold as a complex and the Digest (Occasional propaganda sheet to the investors) says these should close in the next two months and all partnerships cashed out by the end of the summer.

I am, of course, anxious to have it make money, so I can say "I told you so" to Dad, but he may have the last laugh. Will let you know how this comes out.

Mom, Pg II

I will say this with some definiteness, however. No one should ever (And I mean EVER) invest in this limited partnership real estate bit unless they do so with money they can afford to lose. Anyone who needs to have their money where they can get at it if they need it should never invest in this type venture also. It is definitely risky. If I realize my money back on this venture, I will consider myself lucky, and I now realize that if I get my money back with reasonable earnings, it will only be because of honest (?) limited partners. With this type of investment you are really completely at the mercy of the main partner. He can skip with the loot and you would not really have any legal recourse.

I imagine all of you have planned what you are going to do with all that money when you get it. I imagine you have all also told yourself, as I have been telling you all along, not to count on it, as it might fall through. It will be interesting to watch all of you. It is not many people who get to see what their children do with their inheritance, because usually the children don't get it until the parents are dead.

I hope you will all be wise with the way you invest the grandchildren's money. If they each deed over to Tracy 10%, they will have 540 shares, and when they have paid income tax and tithing (I hope all of them will tithe their profits) there will still be a nice nest egg for them, which should help them on missions or with educations. It will also be interesting to see how many of them will blow their funds on foolishness and the vain things of the world, instead of investing it in themselves for education and missions. If money markets and bonds stay good, interest on their money (say they realize \$10,800.) at 10% would double it in ten years. If they were smart and got scholarships to help with their educations, and if their rich parents helped with their educations, they might end up with enough to get a start when they are married. It's not going to be a fortune, but could be the difference between going and not going to college. That would be very important for those smart kids. Or to trade school to receive technical training of some kind.

Dad and I will try to give to each new grandchild born, the equivalent of what each grandchild received at the sale of the company. We figure our fruitful children might produce eight or nine new grandchildren.

Your Dad was absolutely inspired when he signed over the stock to you children. We did not know if it would ever bring anything--and we still don't know, but we knew that if it remained in our own estate, Uncle Sammy would get most of it, or even break all of you upon either or both of our deaths. What we have left in our estate is manageable, and we plan to spend every cent of it on foolishness like travel, etc. So, if you look at it frankly, if this sale goes through, you will be receiving your inheritance. May it bless your lives, help you prosper, and also help you to realize that money is a responsibility--if you use it wisely it can bless, if you use it unwisely, it can be a curse. One thing you can't buy with money is happiness.

A strong family, and a strong testimony of Jesus Christ's divinity and atoning sacrifice, combined with service to church and community, are the foundation stones for happiness. You can have that without money. If you have that first, money can't hurt it. The Lord intends us to have the earth and the fullness thereof, through our wisdom with the use of the earth's fullness.

Mom, Pg III.

I recently listened to a tape of the funeral of Clara Crosland, Ivan Crosland's mother. She was a wonderful, kind, loving lady, badly crippled with Rheumatoid Arthritis. She wrote a life story which her grandson, Richard, read at her funeral. One thing she said which I heartily concur with. "If you pay your tithing, you will never want. Somehow, there will always be enough to meet your needs."

The Bishop said that Ivan came to him after Clara's death and said: "I received her last security check, shall I cash it or send it back. "Cash it," said the Bishop," she was always insistant that the Lord get his tithing. She would want the record to be finished as she kept it."

Remember. You did not really do anything to earn the money you will get (if you get it). It will be pure gravy to you. I hope none of you will even hesitate to pay the Lord 10% for that gift. Doug and Nancy have been trying to get into a situation so they could pay their tithing. We hope this will be the boost they need. Sometimes we think that tithing, after all we pay in income tax, etc., is the straw that breaks the camels back. Really, the reverse is true, paying tithing helps us to be able to pay all those taxes. Figure out that one if you can.

We love all of you. We receive immense happiness and pride from our children, and grandchildren. We think you learned something growing up in our home, if only from reverse psychology, because we think all of you are doing better with your kids than we did with ours.

we thought we had smart kids, and we did, but I'm glad I'm not raising our grandkids--they are even smarter.

We are looking forward to seeing all of you sometime during the year.

Here are some dates to avoid if you are coming to Utah during the summer for vacations, if you want to avoid problems with our own schedules.

The rest of may is quite clear.

June 22-23 is the ward overnight, in which we are involved on the ward activity committee.

the June 30 and July 1st weekend is involved in a high school reunion in Ogden.

July 12, 13, 14 is involved in the Shakespearean festival in Cedar City. Our Study group rents condos at the ski resort nearby and spend the three days talking, shakespeareing, and eating.

August, as of now, is clear.

Love you all, MOM

P.S. Doug's Jeep appeared in one of the Trade Journals and he and Nancy are going to send around a round-robin showing the jeep article. That will be their hallmanack.