

very difficult to get into medical school. The closest I came was the alternate list for Flower Hospital. I finally settled for Dental School as I had artistic ability, great manual dexterity and the thought that, after I finished dental school, I might go on to medical school. All of these facts bolstered my decision.

As a youth, I had a small degree of scoliosis which was diagnosed at my school along with a degree of flat footedness, the latter being observed by my standing on a glass table top. The scoliosis was cured by hanging by my hands from wall bars in the gym with my back to the wall bars. The flat feet I cured myself while being a strap hanger on the subway. Up on your toes and down slowly on the outer edge of your feet. Repeat, repeat,. I never used arch supports as, after a while, you cannot do without them. Also, I avoided shoes with built in arches that were longer than my own arches. Such a situation breaks down your own arch by physical pressure. I used to have postnasal trouble due to a collection of inspissated material until I was taken to an ENT specialist who recommended a pinoleum spray and nose drops. Incidentally, nose drops can get into the Eustachian tube connecting the middle ear to the pharynx. Therefore, when using nose drops in the right nasal passage tilt your head to the left and vica versa. Also, when blowing your nose, blow one nostril at a time and blow gently.

Chapter 2

This Won't Hurt A Bit

The subconscious fear of the dentist, besides being due to a past bad experience, is due to the proximity to the brain and the transmission of sound effects directly to the inner ear instead of through the eardrum. Due to a passion for candy, I spent a great deal of time at the dentist. One dentist was my life long dentist and friend, Dr. Leon Gecker. Flamo needles and home made novocain solution was used. The Novocain pills were dissolved in warmed water. The Novocain was a great pacifier although the injection itself still hurt even with the good looking nurse holding my hand.

Lots of zinc oxide cotton and eugenol and lots of drilling with the slow speed drill but not the type of dentistry that would make him a "cotton pusher." In his office I learned to prevent burns due to spilled phenol by placing cotton in the bottle of phenol. He never had to pull a tooth for me. I lost my first tooth years later, during the depression, when a distant relative removed an upper first molar as an emergency measure. My father had an old scar on his right lower cheek near the ramus of the mandible from an incision of an abscess prior to extraction of a tooth. In service, I had a patient with a similar case but no symptoms except a fistula. Years later, I noticed people with a scar across the bottom of their chin which I found out was a typical ice skating scar due to falling on the ice, face forward, causing the mandible to pierce the skin.

Although this bit of medicine is outside the sphere of dentistry, which is limited to the oral cavity, I feel that I should mention my Latin teacher who had someone dive on top of him in the swimming pool and ended up with a broken nose. He came to class with wooden splints inside the nose and adhesive tape outside to hold it in place and, at the same time, keep the nasal passage open. Reminds me of the bloody nose I received using boxing gloves in my friends cellar. One day I almost poisoned myself by roasting a whole box of marshmallows with the flame of an individual kitchen match for each one. Fortunately, the phosphorus did not stay in my stomach too long and found its way back up. Also, I had a long wooden splinter removed from under my thumbnail, by my father, who always carried a sharp pen knife and pared the nail back so he could get a grip with a pair of pliers. The splinter was the result of dueling with wooden swords.

When I was twelve years old, my father brought home a week old poodle. Unfortunately, this baby poodle got into a fight the first day with someone elses baby dog and when I tried to separate them, by dog turned and bit me with his needle like deciduous teeth. I then refused to keep him.

When the movies first came to the local cinema, there were many comedies, shorts, cartoons etc. My favorite was "Out of the Inkwell" by Max Fleischer. A good cartoon book for children is "Harold And The Purple Crayon". There was one short movie on teeth and eating - masticating, trituration and chewing your food well. If this taught me

anything, it was to be careful about swallowing objects or bones in my food as I always chewed my food up well after that. As a child, I was ignorant of toothache drops and tried to use ethyl alcohol to no avail. There were never any books of, or by, dentists available and it was like the dark ages trying to obtain such knowledge. Years later, a patient gave me a biography of James Leon Williams by Clark.

Some of my friends went out of the country in order to get into medical school. Fortunately, today there are more choices available. CCNY has a medical school, Albany has a medical school. Nearby islands and Mexico have medical schools. The U.S. Army also has a medical school.

In the JADA Vol. 102, March 1981, there was a small article by Dr. Louis I. Grossman on "A Personal History of Dental Practice - 1920-1980" showing the progress that dentistry has made.

I must mention my brother in law Irving Goldfine (he started the advertising slogan "the sky's the limit") who ran the art studio for Scientific Photo Engraving. My brother-in-law Joe, obtained a job for me in Irv's art department when I graduated High School during the depression. \$10.00 per week was the salary out of which I took my train fare and nightly meals before night school and still saved \$275 in a year and a half. Irv took care of his parents and did not marry till late in life. He had one son Robert and died of a heart attack a few years after. In the studio I learned photo retouching and line drawing on photographs which were then bleached out.

Then there was Joe's other brother, Johnny, who had an orchestra and wrote two songs which were plagiarized to make "Stormy Weather". My sister noticed the similarity on the radio and told Johnny. They were the source of Lena Hornes success, and she had a long run at the Cotton Club as a result.

When my brother-in-law Joe passed the bar after the second try, he gave me his saxophone (he had played so many years himself his thumbs were short from holding the sax, an alto sax). I began to learn to play it on my own but I was never good at reading music and didn't have the lung capacity. Between reading music and studying law, Joe wore heavy eyeglasses. I, myself, was always careful to read by daylight and when writing or drawing to have the light over my left shoulder to avoid shadows.

While I was picking up odds and ends about dentistry, I was also learning about business. (How unions bring in goons to help cause a strike and how, when they settle, the workers get very little as the union bosses work together with the factory bosses and we now have a third party sharing in the profits and sometimes actually bossing the bosses).

Before I forget, I'd like to mention my inventions (never patented).

1. The concept of container cargo, circa 1943;
2. The bypass valve cap used on mustard and Elmers glue (Circa 1947);

3. The wing door on the DeLorean - sent to GM by me as an idea about 1927
4. Three dimensional checkers (an improvement on the one with eight levels in Life Magazine);
5. An article on trisection of an angle with straight edge and compass (Illustration # II) which is still in need of corroboration;
6. The Chinese to English Conversion System (An alphabetical system for Chinese characters) - copyrighted;
7. A nasal mask to protect the dentist from aerosol (published in a newsletter letter).
8. An improved technique for crown and bridge impressions published in "Oral Hygiene";
9. A weighted voting system and use of the causes of war as the basis for the weighted voting;
10. The origami canoe made from one piece of folded aluminum;
11. A three dimensional localization technique, using X-rays, for impacted teeth (published in 10th District Dental Society Journal).

Trisection of an Angle with Straight Edge and Compass

The impossible takes a little longer. For many years, proofs have existed to show that it is impossible to trisect an angle with straight edge and compass without sliding or rotating ("cheating") the straight edge around or along a point. B.L. Van der Waerden in *Modern Algebra*, page 44 states "the cubic equation involved in trisection is $4X^3 - 3X = \alpha$, which by Eisenstein's criterion is irreducible. From this it is inferred that an angle cannot be trisected. Undaunted by this and encouraged by my success in rediscovering a solution that has been discovered and rediscovered several times before, (Fig. I A), I proceeded to create a perfect solution (Fig. I B) so I thought. My friend, John Selby, had already given me an algebraic proof as to the fact that Fig. I A solution was only an approximation.

Fig. I B involves ratios and the algebra of Cartesian coordinates in the proof gets so complicated that I looked for a simpler solution. In addition, the validity of the ratios bothered me. This proof, balancing circular arcs, was derived from the concept of the Neusis of Hippias in which the rate of change of a circle is compared with the rate of change of a straight line.

In search for a simpler solution, which would be easily provable by algebra, I resorted to the exception to the rule, the equilateral triangle which gives us $60^\circ = \frac{2}{3} 90^\circ$.

There were several clues in geometry which led me to my present solution. One was the fact that the volume of a cone is $\frac{1}{3}$ that of a cylinder. Second was the fact that tangerine section of a sphere gives smaller and smaller arcs in horizontal section. Another was the intriguing thought that the pyramids held some mathematical mystery that had not been solved. Indeed, I was surprised when I found that a quadrilateral pyramid inscribed in a hemisphere has its sides equal to equilateral triangles. Now came the giant step, "How to get from the great circle of a sphere to a lesser, parallel circle."

Since the pyramid fits so neatly into a sphere and since there was a two thirds relationship between angles at the base and at the apex, another sphere was conceived to be generated by one side of the equilateral triangle. Then, I was able to construct $\frac{2}{3}$ of any unknown angle. (Fig. III). However, algebra shows there is still an error of $9'30''$ (probably due to juxtaposition of arcs NM' and SM'). Fig. IV shows same solution transposed.

I had to laugh at my own conceit when I found out that my complicated gyrations in solving the trisection problems boiled down to the old problem of dividing a line in three equal parts using parallel lines. Except that in my solution I was arcs of circles of two different diameters. The $9'$ error in my solution is due to the differences in curvature. Thus, my complicated solution in Fig. 1. may still be my best answer.

✓ MATHEMATICAL CHECK ON TRISECTON

GIVEN: $\triangle MM'M' = 30, 60, 90$, $\triangle M'MO = 45, 90, 45$, $MM' = 2$, $M'M = \sqrt{3}$, $MM' = 1$

To Prove: Special case of unknown $\phi = 30^\circ$ has $\frac{y_2}{x_2} = \frac{2}{3}$

① $60^\circ - 45^\circ = \angle OMH' = 15^\circ = \angle EMH'$

(2) $135^\circ + 15^\circ = 150^\circ$

③ $\dot{H}_O = H_M - OM = 0.732$

④ $\triangle H'OE = 2 \text{ SIDES \& BETWEEN } 732, 150, 1.44$

⑤ $\angle OHE = \gamma_2 = 20^\circ = \frac{2}{3} \alpha_2$

PROOF FOR H'E gets larger - find a

(A) $\cos \angle A = -.866$, $\sin \angle A = .500$

~~$$\frac{a}{\sin A} = \frac{c}{\sin C} \rightarrow \frac{a}{\sin A} = \frac{\sqrt{2}}{\sin C} \rightarrow \text{Find } A$$~~

$$C \quad a^2 = c^2 + b^2 - 2bc \cos A$$

$$Q^2 = (\sqrt{2})^2 + (.732)^2 - 2(\sqrt{2})(.732)(-.866)$$

$$a^2 = 2 + 1.5358 + 1.2678(1.444)$$

$$a^2 = 2.5358 + 1.8028 = 4.3386$$

$$G = \sqrt{4.3386} = 2.0830$$

$$\frac{2.083}{1.00} = \frac{1.414}{\sin C} \rightarrow \sin C = \frac{1.414}{2.083}$$

~~$\sin C = 3394$~~

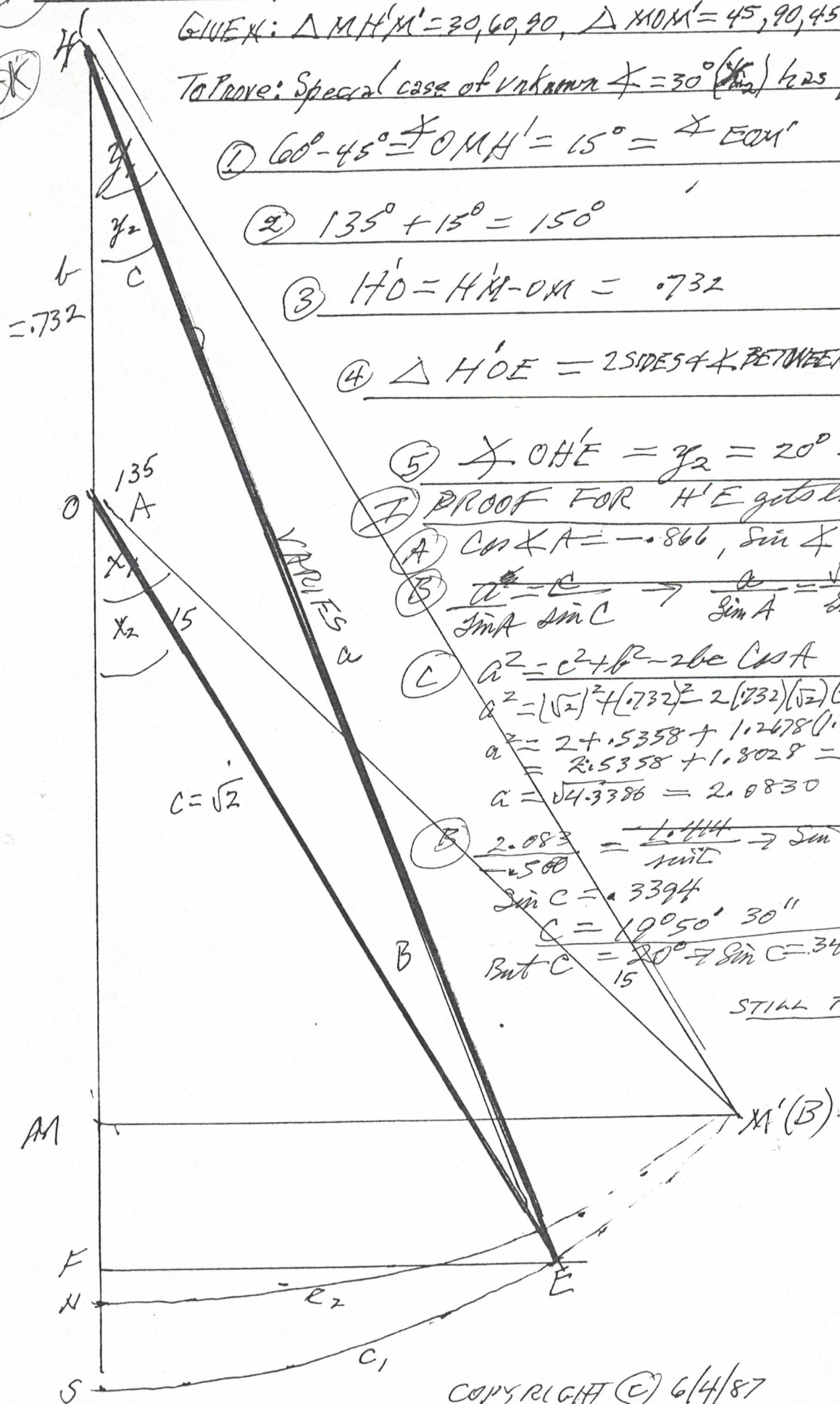
~~$C = 190^{\circ} 50' 30''$~~

~~$$C = 9050' 30$$

$$\text{But } C = 20^\circ \rightarrow \sin C = .3420 \text{ nor } .0026$$

$$= 9^\circ 30''$$~~

STILL TOO SMALL



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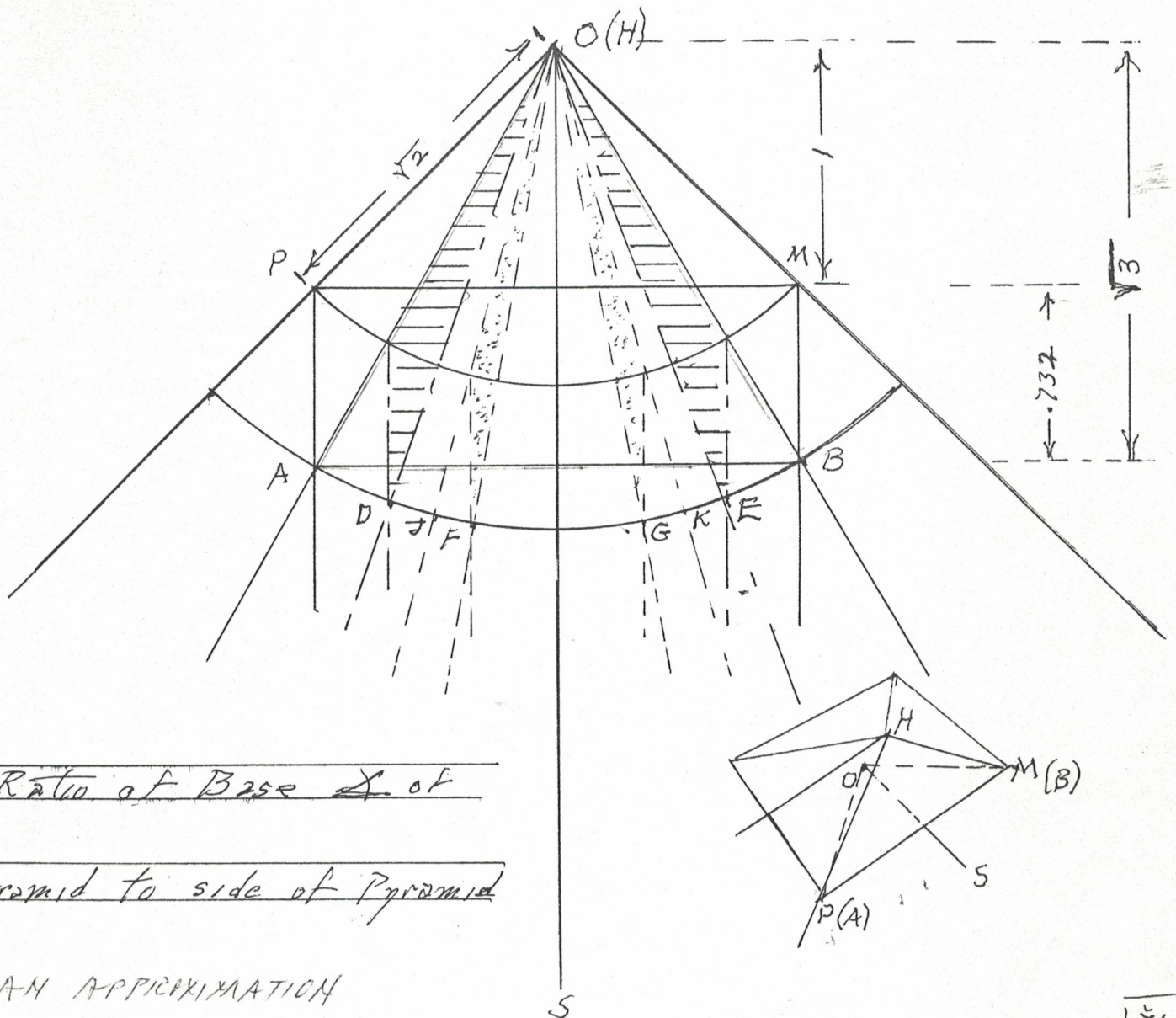
Robert Peitt

PLVS NO III

The Pyramid Solution: Trisection of an Angle

with Straight Edge and Compass: Three Examples

~~X~~ POM (98° → 60°) ~~X~~ AOB (68° → 40°) ~~X~~ ~~POK~~ (30° → 20°)



Ratio of Base ~~X~~ of
Pyramid to side of Pyramid

AN APPROXIMATION

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Robert Reiff

FIG. IV - SAME SOLUTION AS FIG. III BUT TRANSPOSED

* Thanks are due to Prof. Howard Eves for correcting my first attempt to use the equilateral triangle in solving this problem and to my sons Clifford, Douglas and Richard for pointing out errors.
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More information on business techniques. Salesmen keeping their contacts secret to protect their job. Robberies in a business frequently are inside jobs. Each season in a seasonal business is almost like starting a new business since you need a new bank loan, therefore, the secret is to have a nest egg, or sinking fund, or reserve fund so that you are able to be your own banker. A genius is someone who knows a good thing when someone else sees it.

Dentistry differs greatly from medicine. 1. You do not need a bedside manner. 2. You have to do most of the work yourself as compared to delegation to a nurse, lab technician, x-ray technician, etc. 3. Contact with the patients is much closer except in case of an ENT specialist. 4. Inability to sign death certificates. 5. Difficulty in treating emergencies due to specific limitations. Etc.

My first time on a horse was at Putnam Lake. I didn't know the first thing about horses. Planning to ride him around one square country block, I had proceeded about halfway when a dog blocked our path. Taking the path of least resistance, I turned my horse around and proceeded back to the barn. Knowing he was near home, he began to race. I took one look at the barn door and saw that I would never make it under. Using all my strength (about 100 pounds) I managed to stop him about two inches from the door.

In the old days, piano keys were made of ivory and ebony. My Uncle Tony had a player piano that was a great thing to play. He had a drygoods store on Fulton St. which had an elevated train in those days. My fathers factory for Infants and Childrens Coats was on Broadway (1333), later at 505 8th Ave. and still later on 36th Street. The streets on the uptown side have all even numbered buildings and vice versa. Uptown and downtown, the building numbers run about 100 to the block and have the odd numbers on the West side. About 20 city blocks make a mile.

My cousin Bessie's husband Dr. Saffier had a tooth extracted and died on the way home. There were a few other cases somewhat similar. As a result, I advised my patients forty years of age or older to take a prophylactic dose of an antibiotic twenty-four hours before. Most neurological diseases are weird, and of unknown cause. My school chum, J. Zeigler (name altered) contracted a cold virus and later developed Parkinson's, which seems to be terminal in about 5 years. Another school chum developed a partial paralysis of unknown causes. In college, I learned that every species that becomes overspecialized shortly becomes extinct which I feel may well be the case with man. On my first dive, off a diving board, I held my hands so as to lessen the blow on my head but I made the mistake of keeping my head up although my eyes were closed. The blow on my eyeballs is still remembered.

A leg cramp in the same swimming pool due to straining my toes and arches on the slimy bottom left me in agonizing pain until someone showed me how to rub the calf till the pain disappeared. Walking on the foot also helps. So does keeping it warm. On the Galapagos Islands I removed a tooth from a dead shark with my hunting knife. I had

to pound the knife with the back of my hand before I could pry the tooth loose. The teeth are sandwiched in, one right next to the other.

The first dentist was probably a barber in the days when men had their own shaving mugs with their name on it. I constantly suffered from barbers itch and was fortunate not to develop boils on the back of my neck. Now, I cut my own hair, which takes a bit of ambidextrousness and a left handed scissor and left handed mirror. My father instructed me in the use of the old fashioned razor, and to this day, it is the cheapest and it gives the best shave but is a nuisance to use. Don't believe everything you read, even if written by a physician. They advise against splitting a toenail that is ingrown. I trimmed mine, cut a channel down the middle and kept making adjustments every day until it healed properly.

When we moved from the Concourse to Anthony Avenue, my mother told me of the old custom of taking three essentials, a candle, salt, and some bread. The house number was 1957 and that was the same number as the year my father died. An amazing fact about the mouth: My uncle, who was a tailor, could hold a hundred pins in his mouth and bring them out one at a time with his tongue to use in basting a piece of cloth or clothing.

About 1935 I and Donald Jordan went up to Van Cortlandt park to see the landing of the first cross country flight by glider. My folks loved the theatre and I saw a number of Broadway musicals - Tea For Two, Show Boat with Helen Morgan in person, plus Singers Midgets at the Fordham Theater, etc. One night my mother couldn't go with my father and he took me to a dinner held by the National Association of Manufacturers at the Commodore Hotel. It was a very elaborate affair and, near the end, about fifty waiters marched in by candlelight with the deserts under glass covers. An entertainer sang one of Harry Lauders songs with a Scotch brogue. "Oh, I'm not so young as I used to be when I was in my prime, Although I'm getting old and gray, I've had a lovely time, Ah, when I was young awacky, why I was never shy, On the vurry, vurry, nicht when I was twenty-one."

My Aunty Sara, (my father's half sister) used to have us out for dinner every Thanksgiving. She lived with my fathers full sister Ruth who was a spinster. The two of them had a passementerie business in their home, making flowers and other decorations out of silk and other materials. They lived on Eldert St., in Brooklyn, in one of the old fashioned three story brick houses something like the old brownstone houses. We spent a number of summers at Spring Valley which was a long trip by car in those days. An old steam engine still ran up to Spring Valley from Jersey. My father had an Overland with a convertible top which seated six people. The trip entailed a ferry ride as there were no bridges over the Hudson in those days. One fourth of July night we came down snake hill, past a colored, holy roller church, and were the last car on the last (midnight) ferry). We had the top down and we gave the accordion player on the ferry a ride back to New York City. He played all the way back.

I had a neighbor who developed cancer of the lip from the hot pipe stem of the pipe he smoked. Also, I had a friend who suffered from a deviated septum and had difficulty breathing through his nose. He sucked on lemons continually to keep the membranes shrunken. One of my sons had a terribly clogged nose as a child and reached the point where he couldn't breathe. I hooked a tube up to our vacuum, tested the strength of the suction and, then, used it to remove the gunk from his nose. It cured his problem. When I was a child they wanted to remove my swollen, spotted tonsils but I objected and my doctor (Dr. Mittleman) used some cotton dipped in Dakins solution to paint my tonsils which resulted in a cure of the infection.

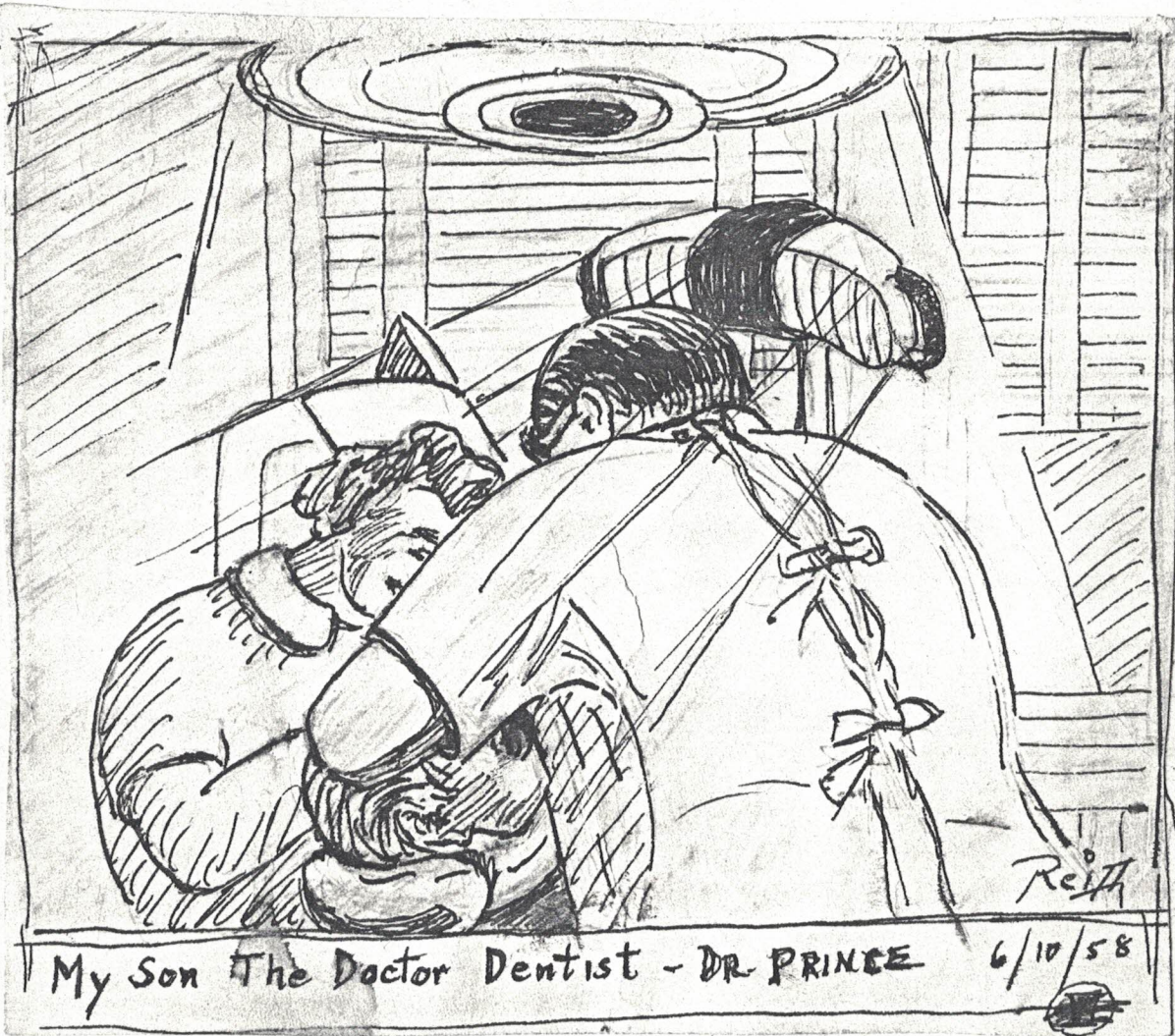
In those days the tooth fairy only left a nickel under your pillow. From about the age of four years, I spent quite a bit of time in the dentist's chair and ended up having but one tooth that did not possess a filling and having more than two fillings in most of the others of which many were gold inlays, to say nothing of a fixed gold bridge replacing one tooth. You can see that I learned about dentistry the hard way. The depression, in a way, was a blessing for it made me realize the benefits we had possessed before. My first trade was that of carpenter, as a result of my father's instruction, although I never worked at it commercially. When I went back to college, after quitting Cooper Union Art school and my job as an artist, I learned that memory is directly proportional to good learning. Then, I went to dental school. As a result of my art work and drafting, I know for a fact that I carved the most exact set of teeth according to the measurements given but, unfortunately, those measurements did not delineate the most natural appearing teeth and I did not receive the highest grade which did not disturb me as learning and not grades was the important thing.

I still have some strong recollections of dental treatment as a child patient. The annoying sensation of a small drill going round and round in a large hole. The increased pain as the drill approached the nerve. The load cracking noise when my tooth was pulled, sounding as if half my jaw was cracking. And last but not least, the odd sensation of laughing gas which I tried just to see what it was like. (ILLUSTRATION # III).

Dentistry is a grueling, dangerous profession. Several young dentists I knew had heart attacks and passed away. The length of working time is greater than that of a surgeon operating and the concentration is just as great. The chances of infection are much greater. In my studies of biology, teeth seem to play a very important part in the survival of the fittest. In high school, I only learned two Latin songs. Mica, Mica Parve Stella and Gaudeamus Igitur (the latter being the graduation song sung in ancient colleges).

My dentist had an old style x-ray machine with the exposed, overhead wires and you could smell the ozone generated when he used it. One day his nurse touched the sink and sterilizer at the same time and the shock almost killed her. He was a consummate magician and always had something to entertain me with to take my mind off the

subject at hand. He was always cheerful despite the fact the he was always down in the mouth.



My Son The Doctor Dentist - DR. PRINCE

6/10/58

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