

Nail Growth

Twenty-five Years' Observation

William B. Bean, MD, Iowa City

Five years have elapsed since the last installment of my notes on observed growth of my left thumb-nail, and more than 25 years since these monthly observations began.¹ On the first day of each month, I made a mark with a small file at the point where the nail emerges below the cuticle. With the passage of time, the mark moved slowly to the free edge of the nail. The end of the growth period was taken as the day the scored mark reached the edge of the underlying matrix. The length of the nail measured on my left thumb has remained fixed as 1.45 cm. A small tattoo mark put a short way from the edge of the cuticle provides another point of reference. With this system, the larger the number of days needed to traverse the distance, the slower the growth. In the Figure and Table, the results and averages may be seen at a glance.

Detailed studies and gleanings by

many clinicians through the past decade have established many salient facts about nail growth. Some of them were alluded to in my previous papers.^{2,3} By now I have become well enmeshed in what even the most optimistic person would have to admit is middle age, and it is but small solace to note that the all too evident slowing of the rate of nail growth has become leveled out in a plateau. No doubt this is a temporary reprieve; but anyhow, in my middle and late 50's, from the 53rd through the 57th year, there has been a stabilization in the rate of growth. There has even been the merest suggestion that the rate of growth might have increased again, but only a trifle. This tiny change, however, is not one which would quicken the pulse or evoke cheers from a statistician looking for even a faint glimmer of statistical significance.

In some particular months, growth has been especially slow. Otherwise

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From the Department of Internal Medicine, College of Medicine. University of Iowa, Iowa City.

Reprint requests to Department of Internal Medicine, College of Medicine. University of Iowa, Iowa City 52240.

Number of Days Required for Mark Scored on Nail Edge on First of the Month to Reach Free Edge

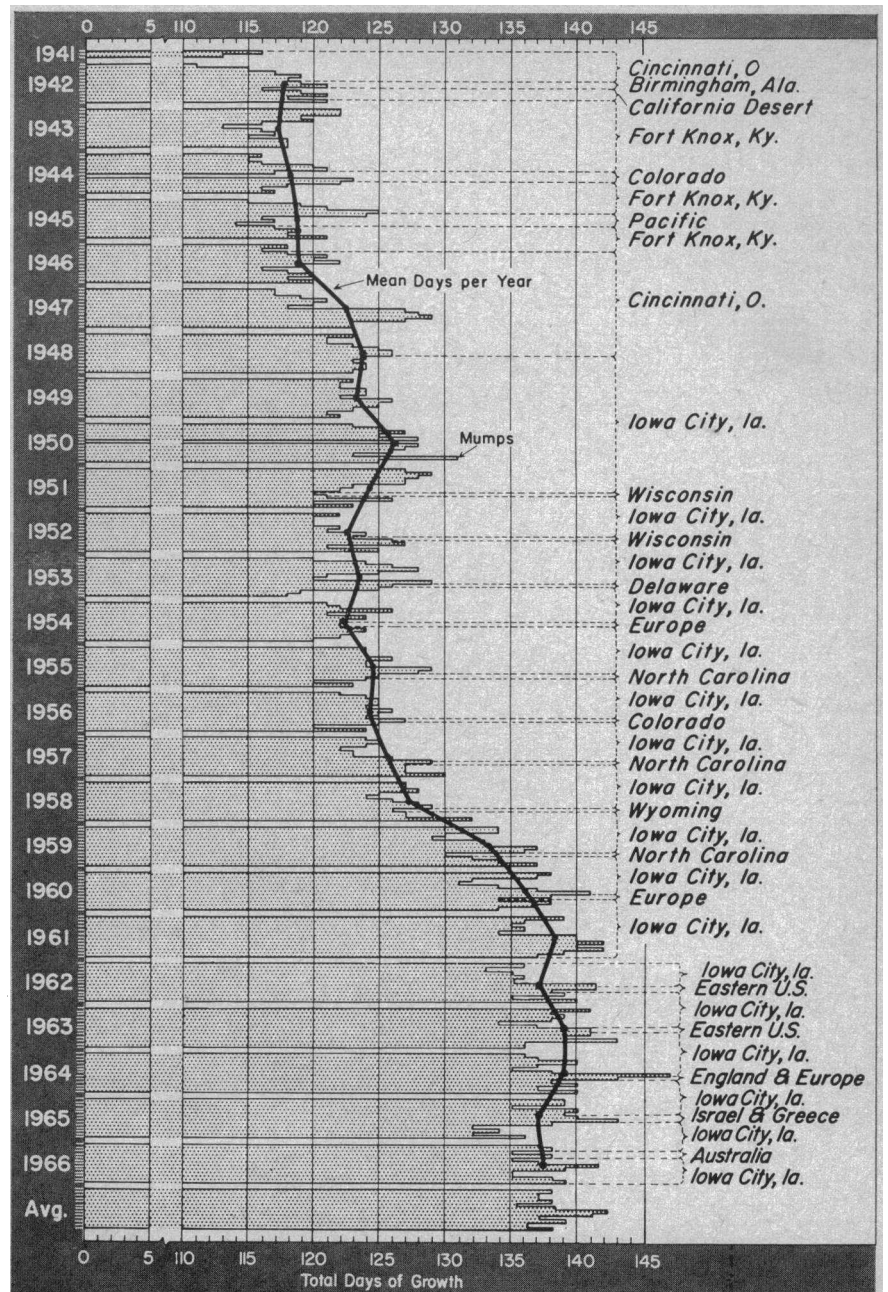
Years	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Average
1961	138	136	135	136	134	140	140	142	140	142	139	137	138.2
1962	136	133	135	136	135	138	141	141	138	139	135	140	137.2
1963	141	138	139	138	134	137	141	141	139	143	136	136	138.5
1964	136	137	140	137	135	138	147	143	138	140	137	140	139.0
1965	139	139	135	140	139	140	143	138	132	134	132	136	137.2
1966	137	138	135	138	135	137	142	139	135	135	138	139	137.3
Average	137.8	136.8	136.5	137.5	135.3	138.3	142.3	140.6	137.0	138.8	136.1	138.0	

there is nothing new to report beyond stabilization at a fairly fixed rate. This is indicated in the Table and Figure. During the particularly slow record of July 1964, and two of the other months where the chart records a longer growth period—that is, a slowing down—I had harsh bouts of common colds. They might have been infections with influenza virus, since there were little epidemics of the “flu” at the time. Perhaps with increasing age, slight infections may have more pronounced effects. Such episodes in the past were not associated with any slowing of the growth of my nail.

As for personal activities, my life as a teacher and doctor, a professor, and editor, has continued very much the same throughout the period of collecting the information except that during the first four years of this study, during World War II, I was in the Army. I still engage actively in exercise, expending even more effort in each game of tennis or squash than I did two decades ago. The scores looked at frankly are steadily more meager. Happily, one tends to overlook this, since his contemporaries who provide competition are aging at the same chronological rate and perhaps at the same physiological rate.

For the past five years, I have ridden a bicycle to and from work, 1,000 miles or so a year according to the odometer, but have done less gardening and have fairly effectively evaded such chores as mowing the lawn and putting on and taking off storm windows. I never observed that such activities with their sharp

Nail growth over a period of 25 years. Growth was measured as the number of days required for a mark made at the point where the nail emerges below the cuticle to reach the edge of the underlying matrix.



seasonal focus had any measurable influence on fingernail growth.

I record these facts and the measure of nail growth now after only a five-year period instead of the ten-year span of the two earlier reports, perhaps because I grow impatient. There is the suspicion that the next years may see a steadier or sharper slowing of the rate of nail growth.

These objective nail marks I have made give me a curious introspective view of downward trending on the tides of time. It gives dramatic verification of what is evident but often overlooked in so many aspects of existence. My introspections and observations remind me of a very long contemplation and recording of the growth, the coming and going, of an individual hair and its root which were recorded by Felix Pinkus some 20 years ago.⁴ Over a period of some six years, Pinkus, as owner and proprietor, lurked in waiting, spied and recorded events as 14 different hairs from one root came and went. The first one was in situ when he began his observations, and the 14th remained in a still healthy state when he grew tired and completed his study. He observed his special pet hair's several growth periods, as well as hairless intervals, and their relationship. I believe his devotion to minute observation has never been surpassed, though no doubt someone will bring me a demonstration that such is not the case.

My "studies" have brought me in touch with a surprisingly wide range

of observations, not only of *Homo sapiens*, but of domestic and wild creatures and the good people who have made them. For instance, Wheeler⁵ studied hoof growth in sheep as a possible index of nutrition in grazing animals, using a marking device not unlike my simple method of scoring the nail. He concluded that hoof growth was an accurate and readily observed phenomenon which was a useful supplementary index of the nutritional status in grazing animals if the biological background could be standardized or was known. Clara Nel van Utrecht-Cock and Willem Lodewijk van Utrecht^{6,7} have made extraordinary use of the wave-like periodicity in thickening of the growing baleen plate of the fin whale and of the blue whale to estimate the creature's age and also the period of the female's ovulation. (We use Beau's and Mees' lines, and grooves, and the sometimes sharp beginning or ending of clubbing to time important medical events.³) They have learned that there is good reason for believing that ovulation, at least in some of the whales, is determined by the amount of daylight to which they are exposed as they swim the seven seas. Differences in the male and female fin whales suggest that the sexual cycle has great influence on the growth cycle. In the day-by-day doings of fin whales, the length of day depends on where they are. When they are migrating south in the southern hemisphere in the spring, they ex-

perience a gradual increase in the length of the day; and the same holds true when they migrate north to a lower latitude in the autumn. It has been postulated that the sexual cycle of female fin whales is connected with the length of daylight, and the ovulatory cycle appears to begin when the length of day increases. Such roving whales certainly have two periods of increase in the length of day during the course of each year: in spring, with migration to a high latitude, and in the fall, when they migrate to a low latitude. All this gets marked out very clearly in the baleen plates, which the Dutch observers have found to be an extraordinarily useful measure of life history, ovulation, previous pregnancies, and such private concerns of this kind of whale. In a way, it is comforting to have Melville's predictions borne out. Recall from *Moby Dick* the statement that "In the central blinds of bone, as they stand in their natural order, there are certain curious marks, curves, hollows, and ridges, whereby some whale men calculate the creature's age, as the age of an oak by its circular rings. Though the certainty of this criterion is far from demonstrable, yet it has the savour of analogical probability."

This criterion now stands established, as biological science has come to the aid of literature. Growth of deciduous tissues gives us a natural kymograph to record secular trends, and in some instances makes the mark on the moving record.

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