Chapter 4: N. A. Court: A Continuing Inspiration

In May 1970, Professor E. K. McLachlan, Oklahoma State University, Secretary-Treasurer of the Oklahoma-Arkansas Section of the Mathematical Association of America, proposed to Professor R. B. Deal, University of Oklahoma Health Sciences Center, the possibility of the establishment of a lectureship to honor a distinguished mathematician, Dr. N. A. Court, a man who was instrumental in starting the Oklahoma-Arkansas Section in 1934. The lecture was to be given in conjunction with the section meeting of the Oklahoma-Arkansas Section. This lectureship was established by the Section on March 11, 1972 with a motion at the business meeting. The following is a quote from that motion:

> The Oklahoma-Arkansas Section of the Mathematical Association of America shall establish a series of lectures, called the N. A. Court Lectures, to be given, one each year, at their annual meeting.

> The underlying theme shall be concordant with the goals and interests of the M. A. A. and those of N. A. Court whose contributions to the American Mathematical Monthly from 1914 to 1964 in Algebra, Analysis, Number Theory, and Geometry; as well as in Mathematical Philosophy, History, and Pedagogy were probably more numerous than those of any other person.

> The lecturer to be honored each year shall be selected on the basis of his contributions to the mathematical community in the areas of interest to the majority of the M. A. A. members and for his demonstration of some of the dedication to the M. A. A. which N. A. Court exhibited for more than fifty years.

When the N. A. Court Lectureship was established in 1972, it was planned that the Section establish an endowment that would pay both an honorarium and the expense of the lecturer. This endowment was established through registration fees and small gifts. In June, 1978 the Court Lecture Fund had on deposit $818.85. With this significant start there were two Court Lecture Fund drives: one in 1979 and one in 1988. Today the endowment account for the Court Lecture Fund has on deposit $5681.21. It is hoped that the fund drive in 1988 will successfully reach the goal of a $10,000 endowment account.

Professor emeritus John C. Brixey, University of Oklahoma, delivered the third N. A. Court Lecture of our Section on April 4, 1975 at Central State University, Edmond, Oklahoma. It was titled Memories of Professor Court and the Early Days of the Oklahoma Section. We reproduce the text of his talk in this history of our Section for the insights he provides into the life and personality of Dr. Court.

Memories of Professor Court and the Early Days of the Oklahoma Section by John C. Brixey

In honor of Dr. Court and his methods of teaching I should be presenting some original geometry theorems or at the very least giving a new interpretation to mathematical philosophy - instead I have chosen a non-mathematical subject "Nathan Altshiller Court and the early years of the Oklahoma-Arkansas Section of the Mathematical Association of America."

Nathan Altshiller Court was born on January 22, 1881 in Warsaw, Poland. In 1911 he was awarded the degree (Doctor of Science) by the University of Ghent in Belgium. He taught for three semesters (1911 - 13) at Columbia University, the next two years at the University of Washington, at Colorado University in the year 1915 - 16, and began his service at the University of Oklahoma as an Instructor in the summer of 1916. He became an Assistant Professor in 1917, Associate Professor in 1923, and Professor in 1935. With the exception of the year 1924 - 25 when he was at the Sorbonne in Paris, he taught at O. U. continuously from 1916 until his retirement in 1951. He died July 20, 1968 in Norman, Oklahoma.

Professor Court's impressive list of mathematical activities reveals why his name was known throughout the mathematical world, and why the University of Oklahoma was known to many persons over the world as the place where he was in residence.

In addition to more than 100 papers, he wrote three books:

1. *College Geometry* -- 1925. A revised edition was published in 1952. This book established a record in modern times in that it is probably the only book on geometry which was in continuous use for more than a quarter of a century without revision. It has been translated into Chinese.

2. *Modern Pure Solid Geometry* appeared in 1935 and was revised in 1964.

3. *Mathematics in Fun and in Earnest* was published in 1958 and was later translated into French and Arabic.

His last publication was a Bibliographical Note appearing in the March 1966 issue of the **Mathematics Teacher.**

Besides his astonishing output in geometry and in the philosophy of mathematics, he had been active as co-editor of the **Mathematics Magazine**, associate editor of *Scripta Mathematica*, and a member of the reviewing staff of the **Mathematical Reviews**, in addition to his various duties in connection with the **American Mathematical Monthly.**

Dr. Court was a scholarly, humorous, extremely industrious, witty, humane person. He deserved a James Boswell to record his long active life. I am not the indefatigable note taker that Boswell was so I have to depend on a sketchy memory for recalling events of the 47 years I have known Dr. Court. Most of my remarks will be personal recollections.

My acquaintance with Dr. Court extends back to the spring of 1920. My brother, who was a year younger than I, had always found mathematics easy and geometry particularly fascinating. (He taught mathematics at the University of Oklahoma and toward the end of his life at the University of Hawaii.) He thought he was really good at plane geometry problems and was brash enough to sign up for and take the 1920 Interscholastic Contest in geometry prepared and administered by Dr. Court. My brother discovered that Dr. Court knew a few tricks in selecting and designing the contest problems that he had not

anticipated. Dr. Court chose contest problems that would quickly eliminate all but the truly expert. This was different from his way of designing class examination questions. His class examination practice was to use simple problems and exact stiff penalties for failure to exhibit knowledge of the fundamentals.

In the summer of 1921 my family moved to a house on the southeast corner of the intersection of Eufaula and University Blvd. in Norman. The Courts' home was to the west on Eufaula less than a block away. Among my earliest Norman recollections is seeing Dr. Court briskly walking, almost at a trot, along University Blvd. either going to or returning from the University campus. In those days he wore a jaunty black mustache, a black hat which covered his famous outstanding hair, and, of course, had his black brief case which was always filled with manuscripts and books. In later years Dr. Court enjoyed the custom of leaving his bushy hair flying to the breeze. Professor Bill Huff recalls that a student asked if Court was related to Einstein. Bill, of course, replied "No!" Another student chimed in "Einstein has the same barber." I believe that Dr. Court enjoyed his resemblance in appearance to Einstein and liked having people make note of it. I am sure that my mother was acquainted with Mrs. Court and aware of the Courts' great interest in community problems.

My first real acquaintance with Dr. Court came during my second year, 1922, at the University when I enrolled in his College Geometry class. It was a delightful experience to take this course with him while he was engaged in writing the material that was to become his text on *College Geometry* while at the same time producing original research on geometry as he continued to do throughout his long life of 87 years.

Dr. Court could become quite excited in his class discussions and his enthusiasm was catching. He might draw a figure on the blackboard, turn to the class, ask a question, rock back and forth while awaiting an answer. If an answer wasn't given quickly enough he might proceed as Juanita Kaiser O'Donley has reported. This is typical for I have heard him use similar illustration to get class attention. "Miss Kaiser, what hangs from the ceiling, is pink, and squeaks?" Dead silence from Miss Kaiser and the class. Then Dr. Court says "a fish. Why is it hanging from the ceiling? Because I hung it there. And why is it pink? It is pink because I painted it pink." Still silence. "Do you know why it squeaks? I just put that in so you wouldn't guess." Then Dr. Court would proceed to question Juanita on the lesson on College Geometry leaving the rest of the class completely alone. And when Court first said "a fish," it was said in a tone indicating that one was exceedingly stupid if he didn't know it was a fish.

Some of you may find it interesting to discover how Dr. Court obtained his name. Dr. Court became a naturalized citizen of the United States in 1919. After the naturalization ceremony Dr. Court inquired of the judge if it were possible to change his name, something more appropriate as a United States citizen. Dr. S. W. Reaves, who had witnessed the ceremony, suggested the name COURT, as a gesture of appreciation to the American Court of Justice. Mrs. Court whole-heartedly agreed to the new name by telephone, and so it was thereafter, Nathan Altshiller Court.

Over the years I have listened to several students who took mathematics courses at the University of Oklahoma during the years 1919 to 1921 tell this story. "I took trigonometry with Dr. Altshiller and failed so I decided to try

trigonometry with the new instructor Dr. Court." Dr. Bill Huff's daughter's
father-in-law claims he was that student.

I must tell you another anecdote I learned last spring at a retirement
luncheon. A former student of mine and of Dr. Court, Dr. Lee K. Emenheiser,
professor emeritus from the O. U. Medical School, related it to me. While
teaching Dr. Court frequently became so enthusiastically excited that he
sputtered. Lee was taking trigonometry with Dr. Court. One morning one of the
girls on the front row of the class appeared with an opened umbrella.

Many of Dr. Courts' concerns as a mathematics teacher and teacher of
future mathematics teachers were expressed during the progress of my college
geometry course. Geometry for him was a life-long love affair to be enjoyed
with a sharp pencil, a clean sheet of paper and solitude. In his college
geometry classes and at teachers' meetings Dr. Court emphasized that teachers
should not only have the students master fundamental theorems and their use but
should help them and require them to develop the ability to state and prove
original theorems.

In addition to geometry Dr. Court was fond of mathematical philosophy.
It was my good fortune to take such a course with him in 1923 and remember his
enthusiasm and sparkle during class discussions of the work of Poincare,
Kaiser, and others. Later he wrote papers (*The Motionless Arrow* (1946),
Mathematical Asides (1947), *Perplexities of a Potatoe Pusher* (1948), and the
book *Mathematics in Fun and Earnest* (1958)) which contain some of his
philosophy.

Dr. Court was quite adept at putting people to work. In 1924 – 1925
while Dr. Court was on sabbatical leave in Europe his *College Geometry* was
going through the press and the page proof sheets were left to be read and
corrected by Dr. S. W. Reaves. I recall that Reaves would come to class with
proof sheets and ask some of us who had studied Court's college geometry what
was meant by various statements. Court was used in many ways on the staff of
the **American Mathematical Monthly** and most of his associates had papers farmed
out to them to read and edit. I recall, in particular, a fairly lengthy
geometry paper that he asked me to read which required a great amount of time
since it contained fundamental errors necessitating thorough revision.

Dr. Court was an important recruiter for new members of the Mathematical
Association of America. Given an opportunity at a mathematics teachers meeting
or mathematics staff meeting he would point out the advantages of MAA
membership indicating the nature of the articles in the **Monthly** and emphasizing
the fact that authors and editors were not paid for their articles or work,
consequently, membership was inexpensive. It was $4.00 per year then. Since
we had no section of the MAA before 1934 Dr. Court also recruited papers for
the meetings of the Oklahoma Academy of Sciences where he thought a
mathematical audience could be developed. I remember an occasion when he
persuaded me to write and present a paper. To do this I recalled Hardy's
remark given in a Chicago lecture to the effect that "*Dickson's History of the
Theory of Numbers* is delightful breakfast table reading." However this may be,
I found an idea I could develop and present. S. B. Townes also presented a
number theory paper. Our papers soared like lead balloons before a group
consisting almost entirely of biologists and social scientists. This caused
Townes and me to be quite definitely among those desiring a section of the
Association where one might expect some of the listeners to be interested in
his work.

To understand the problems of programming and meetings in the early years of our section as contrasted with today, it might be helpful to compare membership sizes. The 1933 - 34 membership in the MAA: Arkansas had 6 members, and Oklahoma had 27. As late as 1947 Arkansas had 6 MAA members and Oklahoma 49 members. The 1974 - 75 combined membership list gives Arkansas with 94 members and Oklahoma with 225 members. (Note added: The 1987 - 88 combined membership list gives Arkansas with 184 members and Oklahoma with 333 members. For 1987 - 88 there are 151 MAA members in Arkansas and 220 MAA members in Oklahoma.)

Prior to 1934 college mathematics teachers interested in meeting together attended the Oklahoma Education Association (OEA) convention which met on alternate years in Oklahoma City or Tulsa. For some years Dr. Court had been proclaiming the need for a section of the MAA which could have regular meetings devoted to papers and discussions of interest to college mathematicians. On February 9, 1934 at the University Club in Oklahoma City with N. A. Court presiding and 69 people in attendance the Oklahoma Section was formed.

For some years the meetings of the section were held during the OEA conventions and an attempt was made to keep the programs such that high school teachers might also be interested in them. In addition the OEA allowed a small amount of money to help defray expenses of guest lecturers.

I served as secretary from 1939 to 1951 and governor 1951, 1952. During these years the Section became more important as a medium of expression for College Mathematics teachers. One of the tasks a secretary performs is that of arranging programs for the Section meetings. I could depend on Dr. Court for a paper if needed and for help in persuading others to give papers - for in those days members were not as numerous and not as willing to prepare papers as they are now.

In 1965 the Oklahoma-Arkansas Section of the MAA was formed.

Although this will involve some repetition I wish to conclude my remarks by reading my tribute to Nathan Altshiller Court given at the Memorial Service on Sunday, October 27, 1968.

John C. Brixey's Memorial Tribute to N. A. Court

It is my hope that my remarks will recall the kindly, genial, scholarly man that Dr. Nathan Altshiller Court was. In memory I see him walking down the Boulevard in his sprightly way, bushy hair to the breezes that, later students thought, gave him the appearance of Einstein; carrying a black brief case; absorbed in thought no doubt about his life-long favorite "geometry."

I first knew Dr. Court as one of his College Geometry students in 1922. At that time he was in the process of writing and developing his world famous text. It was a never-to-be-forgotten experience. He would come into the classroom eyes sparkling through his thick glasses and bubbling over with enthusiasm for the material he was working on and wished you to enjoy. Students used to say "avoid the first two rows of chairs" for they thought his enthusiasm sometimes a bit juicy. I can see him step away from the blackboard when he reached a point which he wished the student to think about before giving the final conclusion -- then tugging at his hair and suddenly saying "well" he would step back to the

blackboard crashing and shattering his chalk at a point on the board as he completed his theorem.

Time and again Dr. Court would state "all that one needed to do research in geometry was pencil and paper." But few have had his ability, his patience, his concentration. Many nights, when returning late along Eufaula Street, I have noticed Dr. Court working in his study.

As in the advertisement concerning eating just one potato chip, I found that one course with Dr. Court was not enough. I remember a course in mathematical philosophy where we read the work of Kaiser, Poincare and others. Dr. Court made this a delight to attend and I know that his interest in this subject was reflected in subsequent published papers. Later, when helping with sectioning mathematics classes, I learned that many students once having had Dr. Court as an instructor were quite insistent that they take the rest of their mathematics with him.

Dr. Court was not a narrow one-sided man. He and Mrs. Court entered whole-heartedly into the life of the community. One could count on finding them in attendance at public lectures, musical and dramatic programs, and art exhibitions. They were unafraid fighters for human rights, human dignity, and human welfare. My last conversation with Dr. Court was one in which he had telephoned worried about what he should do to make a contribution to the United Fund. At the time of this conversation he was already not well.

Dr. Court in a very real sense fathered the development of mathematics in Oklahoma. He was vitally interested in the Mathematical Association of America and a leader in establishing the Oklahoma Section, now the Oklahoma-Arkansas Section. For many of the early years I was secretary of the Section and it was my duty to arrange the meeting programs. I could always depend on Dr. Court to present a lively, interesting, original paper on geometry.

To conclude my remarks I wish to read one of Edna St. Vincent Millay's sonnets which Dr. Court quoted in his *Mathematics in Fun and in Earnest*. It expresses a little of my respect and regard for Dr. Court, a lively personality, a friendly scholarly man, an outstanding synthetic geometer.

> Euclid alone has looked on Beauty bare.
> Let all who prate on Beauty hold their peace,
> And lay them prone upon the earth and cease
> To ponder on themselves, the while they stare
> At nothing, intricately drawn nowhere
> In shapes of shifting lineage; let geese
> Gabble and hiss, but heroes seek release
> From dusty bondage into luminous air.
> O blinding hour, O holy, terrible day,
> When first the shaft into his vision shone
> Of light anatomized! Euclid alone
> Has looked on Beauty bare. Fortunate they
> Who, though once only and then from away,
> Have heard her massive sandal set on stone.

N. A. Court's Dedication to the MAA and the Section

Professor Nathan Altshiller Court was a charter member of the Mathematical Association of America. He dedicated himself to promoting the Association by encouraging membership in the MAA among students and faculty. Dr. Court was a tireless supporter of MAA and Section activities even after his retirement from University of Oklahoma in 1951. As these pages have already chronicled, he, along with Dr. J. O. Hassler, was instrumental in the founding of this Section in the early 1930's.

Professor Court had twenty-nine publications in the **American Mathematical Monthly**. The first appeared in 1915 under the name Nathan Altshiller: *On the Circles of Appolonius* [Amer. Math. Monthly, Vol. 22, 261 – 263]. His last **Monthly** paper appeared in the May, 1964 issue, *A Generalized Inequality* [Amer. Math. Monthly, Vol. 71, 539 – 540] with a follow up to this article, *Postscript*, appearing in November, 1965 [Amer. Math. Monthly, Vol. 72, 1013]. Professor Court served the Monthly as a reviewer and the MAA as the Oklahoma Section's first Governor, his tenure as Governor extended from July 1, 1948 to June 30, 1951.

Dr. Court served as the Section's first Chairman. He was always willing to help Section programs by presenting papers during Section meetings and soliciting papers from colleagues. Over the years Dr. Court presented papers at ten different Section meetings. The last such presentation was an invited address at the Section meeting held at East Central State College, Ada, Oklahoma. At this meeting Dr. Court shared the billing with another invited speaker, Professor R. H. Bing, the then President of the MAA. Dr. Court's talk was entitled *Quadric Surfaces Associated with a Tetrahedron.*