A Wide-Open Field

IN AN INFORMAL "BULL SESSION," FOUR OUTSTANDING ENGINEERING STUDENTS DISCUSS SEVERAL SUBJECTS PERTAINING TO THEIR COLLEGE. CONVERSATION COVERED MUCH TERRITORY.

For a look at student viewpoints in the College of Engineering, two seniors and two juniors were invited to a Bull Session with the editor of *Sooner Magazine,* David Burr. The four: Ed Ligon, Industrial Management Engineering junior; Hoyl Lockett, Civil Engineering senior; Bill Kennedy, Mechanical Engineering senior, and John Holtzclaw, Mechanical Engineering junior. Ligon is president of the Engineers' Club; Lockett has served as chairman of Engineers Open House; Kennedy is Senior Class president of O.U. and recently named Gold Letzeiser Award winner for men, and John Holtzclaw, who has participated in many engineering programs. The four have a combined grade average of 3.18. Here are their viewpoints:

DAVID: Why did you decide to become engineers?

ED: I noticed in high school I got along well in math and some of the more technical subjects. That's what interested me most, and I thought I'd always have a better future by going into the field of engineering.

HOYL: Well, for me, civil engineering followed right in with the construction work I had done here in Norman. I became interested in structural design, which is my major. I really liked math and related courses in high school. It just seemed to be the thing for me.

JOHN: As Ed and Hoyl both said, I, too, liked math and physics in high school and things that seemed to be closely related to engineering. I came to a Career Conference, when I knew I was coming to college, back in 1952, and there again I heard about engineering. I definitely made up my mind that I wanted to be an engineer. And then, too, there is the pay that you expect when you get out. Another aspect is the prestige of being in the Engineering School and saying that you graduated as an engineer from O. U.

BILL: Maybe I'm different from most people, but all my life I've grown up with the idea that sooner or later I'd become an engineer. Mostly through association with my father in the petroleum industry and through work done in the summertime for different oil companies, I had seen the many advantages to being an engineer, not only in pay, but in advancement, promotion and success in the outside world. As I said before, it's been a life-long ambition for me to be graduated from the O.U. College of Engineering.

DAVID: Just what part did money play in your decision to become an engineer?

BILL: I don't believe that money played a very important part in my decision. Actually, when you get in the outside world, you're going to have to be happy with what you are doing and that means more, I think, to the young man who graduates from college than anything else. If you're not happy with what you're doing, the pay makes little difference. You'll soon be disgusted with your work, you won't produce close to your full efficiency, and you soon become discouraged no matter what the financial benefits may be.

ED: I agree with that. Another reason I chose engineering is the same as John and Bill brought up. And that is the pride that you can have in engineering as a profession. I'll be proud to be able to say when I get out of college that I'm an engineer.

DAVID: I noticed none of you have said anything about the security engineering offers. Did that have anything to do with your decision?

ED:I definitely think so. To me, engineering is a wide-open field. I can't see where they'll ever get enough engineers. Things are getting so technical, and there's such a need for technical men now that there'll always be a great demand for engineers.

BILL: I agree. I believe that the demand for engineers is increasing every day. Engineering, both as a field of financial success and job security, is one of the most promising fields for a young person coming to college today.

DAVID: Years ago it was a very common occurrence for a man to start off with an idea and become a rich man overnight—the Horatio Alger success story. Do you feel that the field of engineering offers the best opportunities for that kind of advancement today?

BILL: I think there are plenty of opportunities for advancement. A good example was one of the 1955 Career Conference speakers, Mr. Ernie Childs. He graduated from O. U. just 15 years ago and in a relatively short time made his first million. I was expecting a talk from him on engineering, but it turned out to be a session on management, and how engineers who are willing to do more than slide a slide-rule back and forth can get along fast.

JOHN: Another thing Mr. Childs emphasized in Career Conference was not to be an engineer that wanted to spend the rest of your life in engineering, but to spend eight or ten years in engineering and then go into management. He said that's where

ENGINEERING STUDENTS SPEAKING

ON APTITUDE TESTS: "You practically have to take one to see if you can walk."

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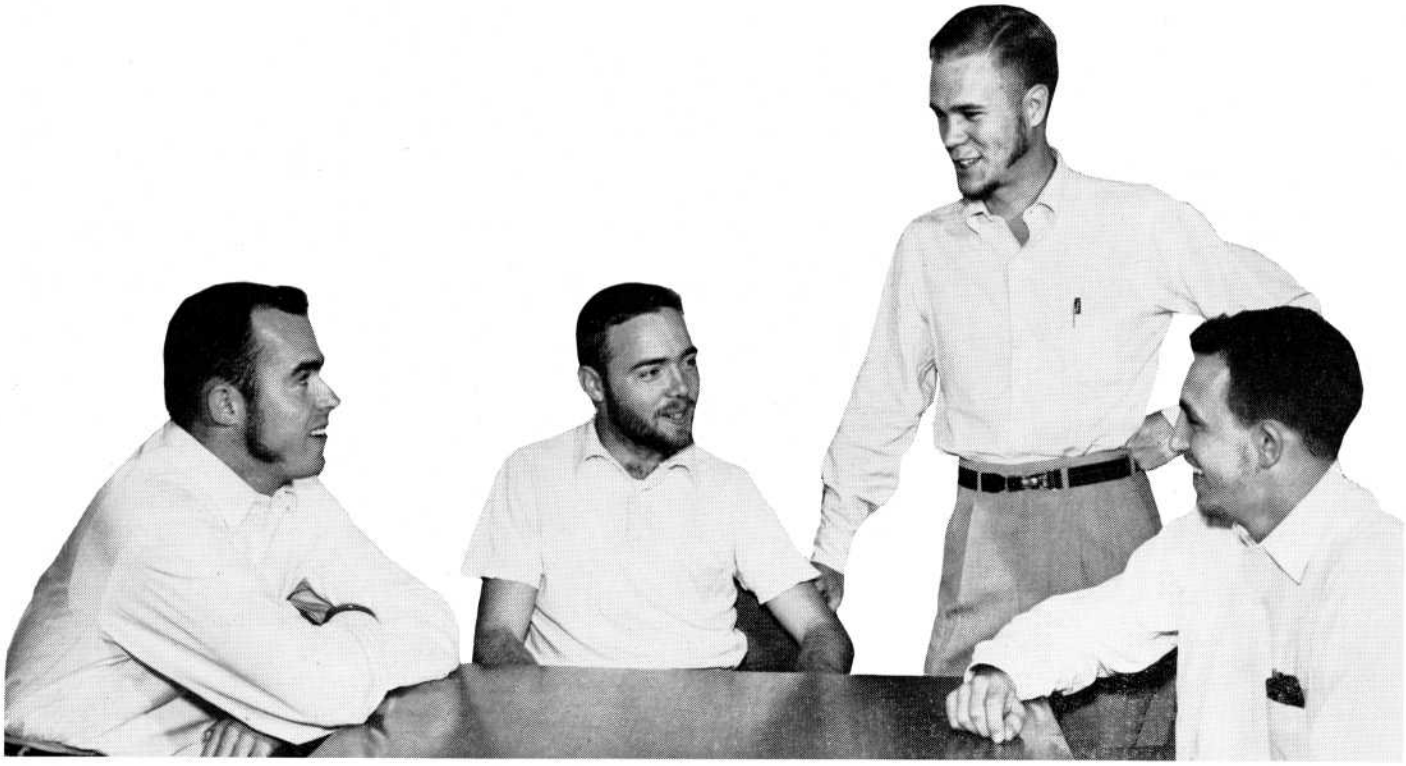
ON WHY STUDENTS GROW BEARDS: "We have 300 or 350 guys over there that are growing beards . . . they're just doing it . . . to show everybody that they're engineers . . . of course, there is a contest with a few hundred dollars in prizes."

ON STUDENT LEADERSHIP: "I believe that you'll find that most of the engineers who are top men in engineering are top men on the campus."

OUR ENGINEERS' ASSETS: ". . . It (engineering) teaches you to think and to be able to analyze problems. When he starts to work he doesn't panic at the red-button signal."

ON ENGINEERS' FUTURE: "The sky is the limit for the person who can sit down and think and be able to work out a solution to problems."



"Bull Session" participants were Bill Kennedy, John Holtzclaw, Ed Ligon, Hoyl Lockett. Kennedy, Lockett are seniors; Holtzclaw and Ligon, juniors.

you're going to get financial independence and not by working for a salary all your life, as a technical engineer would do.

HOYL: I don't think we should leave out the fact though, that for those who go into research and development that there are new inventions being made every day. If you go to work for a big company you will not be able to capitalize completely on your own invention, but they do give you sizeable returns. Anyone who continues to make these contributions ought to have financial independence in a short time.

DAVID: When did you make the decision to become an engineer?

JOHN: I was contemplating going into geology, there was so much oil in Oklahoma, and I thought maybe that might offer the best opportunities. Then I came to Career Conference and heard so much about engineering and the opportunities that it had to offer, as well as financial rewards, that was when I made my decision to become an engineer.

HOYL: I think I was sold on engineering from the very first courses in high school. Since then I have not decided on the particular phase of engineering I'm going into, but engineering in general appeals to me.

ED. I really didn't know I wanted to become an engineer until just before I came down here. My grandfather is both a mechanical and petroleum engineer and I believe he pounded it into my head on the sly. I think what really made up my mind were aptitude tests I took in high school in math and mechanical ability. When I saw I was high in those areas, I realized that I did have an interest in engineering.

BILL: As I've mentioned before, I've wanted to become an engineer since I was knee-high to a grasshopper. The particular field I decided upon, mechanical engineering, was due more to the influence of various engineers in the oil industry. They told me that perhaps the best way to get ahead in the oil industry or any other industry was to be a mechanical engineer. In that phase of engineering you get an over-all picture of the whole engineering field. You don't specialize in any one particular thing. You are more able to go to work for any particular concern that you might like.

DAVID: Incidentally, Ed mentioned an interesting subject when he said he took aptitude tests. Did any of the rest of you take aptitude tests?

JOHN: Any more you take aptitude tests on anything you want to do. I'm in the Navy and I took aptitude tests to get in that. I'm going on into Naval Aviation and you have to take one to get into that. You have to take one when you come to college to see what courses you should take. You practically have to take one to see if you can walk.

DAVID: By the number of firms seeking O. U. graduates this year, and the success of graduates of the college, we know that the college is doing an adequate job of technical preparation. However, if you had the chance, what basic changes would you make in the college course offerings?

JOHN: Give engineers more management courses. Now industrial engineering has the courses, but I don't have any management courses at all required in my curriculum. I think that would definitely be an advantage to have some of those before I get out of college.

DAVID: What about sociology and some of the other so-called liberal arts courses?

JOHN: It would definitely be an aid because it would help you in meeting people and talking to them and understanding them.

HOYL: I think our biggest lack in engineering is English. I, for one, have taken one extra elective in English, but I feel I would have benefitted more if I had been required to take several more. I know that nearly all the lecturers that have come here to talk about engineering, and give us advice, say that one of the main handicaps of engineers in society is that they become so technical in their own field that they forget how to express themselves in the common language of the non-engineers about them.

BILL: I know it's been said several times that good engineers make poor public speakers. One of the reasons is that any speech they write is read when they give a talk before any large group of people. That's probably due to the English and the very technical words that they use, and due perhaps to the fact that when an engineer does get on his feet before a large audience, he's somewhat at a loss because this is something that he's not very well acquainted

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with. Even though most of the different schools in the College of Engineering require a speech course, I believe it would be a definite advantage if they would require two or more. Nowadays engineers are having more opportunities to speak to different groups of people. It's to the engineer's advantage if they can make a reasonably interesting talk to non-engineers. I think definitely this is one thing that would help us.

ED: Well, I go along with that English and especially on the speech. One course that I found very helpful to me and, I believe, would be good for all engineers is a course in personnel management. Now, as part of my curriculum I have taken such a course. I think it would be very helpful for all engineers to take that kind of course. It would give them a broader outlook and help them realize what makes people run.

HOYL: One point I'd like to throw in—for me, being just more or less a general engineer, I would appreciate the curriculum more if we could get more of the general theory of engineering. To me, the reason engineering seems so much harder than other colleges is because we spend so much time working problems. We are interested in the theory and would like to move on with it, but we just don't get along that fast because we can't keep up with the problems. To become a specialist nowadays, it's almost a necessity to get a master's degree or go into a company with a general engineering background and let them train you in the special problems.

BILL: That's always been my impression. I might be wrong, but to me that is the main reason for the training courses that the companies have. They spend thousands and thousands of dollars on training you after you do get out of college. They have these fabulous programs set up to train engineers for the certain problems that will come up in the company's specific line of work.

HOYL: In every one of the interviews for employment I've had, they have stressed the particular type of training program they have and how they try to fit it in with the background I have. As a civil engineer, they check to see whether I've gotten any extra courses in English, or business law, or things along that line. When you get into the company, they have their own specific methods of design and all the different specifications they have to follow, and you just naturally fall in line and pick it up in a couple of years. That's just the same as going to school two or three more years except you aren't here on the campus, and you're making a little money on the side.

DAVID: What have the interviewers who have been here this year been looking for?

HOYL: In particular, I think they're looking for general engineers. Of course, they'll get a few specialists out of the engineering program, but they can teach you to do all the specific requirements in their field. Most of the companies I have interviewed are trying to find somebody who can lead a group of men, say, in five years, and one who in another ten years can take hold of a certain portion of the company, and possibly move up to a higher position. I believe that is the main thing they're looking for, because they feel they can train engineers to do specific jobs. Enough people are interested in research that they can keep the advancement going there, but it's going to take people who can supervise to get industry's mission accomplished.

BILL: I agree with Hoyl wholeheartedly. Interviewers, when they come here to O.U., are not necessarily looking for straight "A" students. They are looking for a person who has a well-rounded personality—by that I mean a person who has fairly good grades and who takes part in extracurricular activities in school, because they feel, if they get the person who has the well rounded personality plus grades, their chance for success is much greater. Extra-curricular activities in college as well as in high school are important. You learn how to deal with people, how to lead them, how to get along with them. And after all, that's what you're going to be doing the rest of your life. Working for a company is a selling job. They're trying to sell the company to you and you're trying to sell yourself to the company. Your success, yours and the company's, depends on how well you can get along with people and how well you can sell your company to somebody else.

HOYL: One recent lecture that I heard pointed out specifically that one reason people look down on the engineering profession is that the engineers have gotten off by themselves and gotten real technical. If you can find people in college who have joined in other activities and kept fairly good grades, they will be more likely to enter into civic activities and become a part of the community. And in that way it sells their company more than anything else and creates better job relations all the way along.

DAVID: Isn't this whole problem created because the engineering profession is growing much larger all the time and has a much larger leadership role to play?

BILL: I definitely think the engineering profession is one of the fastest moving professions in the world today. I firmly believe that ten or twenty years from now the leaders at the top of industry are going to be engineers, not only due to their technical background, but because of their ability to get along with people.

HOYL: There are many places in industry for those who don't take part in extra-curricular work, however, especially in drafting work. There's plenty of room for both types of engineers. But as far as financial success is concerned, it goes to the one who can lead and supervise more than the one who does the design.

ED: Of course, some people desire to do research. They don't care about managing a group of men or anything like that. Some people are inclined that way. If it wasn't that way, if everybody wanted to be a manager and run people, we'd be in an awful mess. There is that type of person who is very happy in a lab.

DAVID: While you've been students here, what has been the thing that impressed you most?

JOHN: Well, one of the first things that impressed me was there was so much difference between high school and college. You are expected to produce and produce on your own so much more here than you were in high school. In high school if you fell down a little bit you had someone to pick you up and help you along. Here it's every man for himself. There are so many in school, of course, those that are going to work are going to get ahead and those that are here to play are not. That's one of the main things that a new student coming in has to get accustomed to. It's a matter of responsibility. There are so many

more demands here on your time than there were in high school. Here you have to budget your time to make room for everything.

ED: That's true. The thing that's impressed me is the spirit in the College of Engineering.

JOHN: Everyone that gets in Engine School has a feeling of pride. One example is on this beard growing contest. We have 300 or 350 guys over there that are growing beards and they're just doing it, I think, to show everybody that they're engineers—of course, there is a contest with a few hundred dollars in prizes. Another thing you might mention is that Engineering College has the president and vice-president of the senior class. Kennedy here, of course, is president, and that's another thing where the engineers stuck together, because almost all of them unanimously supported Kennedy and Dan Blankenship, the vice-president.

DAVID: There is very little question about the unity you are able to develop. But do you think that unity may be keeping you from participating in other university-wide activities?

ED: I definitely don't believe so. I believe you'll fnd that most of the engineers who are top men in engineering are top men on the campus.

HOYL: I'd like to put in my two-bits worth here. I think that the answer to your question is that a person just starting out in the Engineering School gets the spirit and takes part in the engineering activities. Then after he has been in engineering a year or two he is pretty enthusiastic and wants to expand. He turns to University activities. By the time a person is a senior, and has been in the Engineering School for two or three years he wants to do more for the Engineering College than can be done wholly within the Engineering School, perhaps. That's one of the motives behind participating in University activities.

DAVID: There has been a great deal of talk about the value of an engineering degree. Everyone admits that it is an Open Sesame for money, for security, for a good job. Do you think that the degree you will get from the Engineering College is an award for technical excellence, or do you feel, that from all of the things you have gotten out of college in addition to your in-class training, that it is more than that?

JOHN: Primarily you'll have to say that it is a technical proficiency degree, because that's what it is, but really you do pick up a lot of other things that you don't get out of technical books.

BILL: Dave, I'd like to say something here that I've been thinking about for a long time. And that's this degree business. Actually, all it is is a piece of paper with black ink written on it. As far as an engineer is concerned, I don't think it sets him apart from anyone else. But I think the one thing you get out of Engineering School that you don't get out of any other school on the campus is that it teaches you to think and to be able to analyze problems. I think that's the biggest asset an engineer has when he receives his engineering degree. When he starts to work he doesn't panic at the red-button signal. After all, the sky is the limit for the person who can sit down and think and be able to work out a solution to problems.

HOYL: I think, of course, that the engineering degree is very technical, but I really think it indicates more of just an interlude in your liberal education.

JOHN: Another thing engineers have to realize is that after they get a degree it's not a stopping point. They're just then starting.

BILL: I think it's a passport to bigger and better things. As John said, just because you've got a little sheet of paper is no sign you've reached the top. Actually you're starting all over again, just as if you were a freshman at the University.