

STATE AFFAIRS COMMITTEE

February 18, 1963

The State Affairs Committee met in Room 529, with members of the Ways and Means Committee present to hear discussion concerning S.B. 151.

Chairman Taylor made preliminary remarks concerning the manner in which the meeting would be conducted, and introduced Rep. Rees Hughes to speak and to coordinate the people who wished to be heard. Mr. Hughes stated that he was appearing not as a legislator, but as one who is experienced in higher education and one who is interested in improving education in the state. He stated that he believed the inclusion of Wichita University was a step toward that end. He stated that it was his hope that the bill may be considered for its worth without thought of politics, area opposition and personal prejudices. He pointed out that 100 years ago 91% of the population in the state was in the Eastern third of Kansas, and that is why the schools of higher learning were placed in Manhattan, Lawrence and Emporia; that 40 years later the population had shifted somewhat and Hays and Pittsburg colleges were established; that now, 100 years later, we must consider the shift to the south central and southwest areas; that 100 years ago 2% of the state's population was in the Wichita area, and that now 29% is there. He states that presently the state budgets \$2,400,000 for student employment on the state campuses but that the City of Wichita would be able to provide sufficient employment for the students there, without supplement. He states that enrollment in the higher educational institutions is around 32,000 and that in 13 years it is estimated that an enrollment of 60,000 may be expected.

Mr. Hughes introduced Mr. Jim French of Liberal, who spoke from the standpoint of education alone. He stated that out Southwest they sometimes wonder just how closely they are connected with Topeka when three other state capitols are closer in miles; that Hays is 200 miles from Liberal, with poor transportation connections; that they are closer to Oklahoma University, Texas State and the University of New Mexico, than to KU or KS. He states that in the Liberal schools there are 4600 students and the schools are still growing; that there are three times as many in grade school as in high school there. Further, Mr. French states that the economic matter is the great concern;

that there are more employment opportunities in Wichita than in the other university areas, and that if the state took Wichita University into the system, the tuition could be decreased and with the work opportunities available, more of the western Kansas students could attend college.

Ken Ketchum, representing the Machinists Local in Wichita, appeared in support of the measure, stating that he represents the working people of Wichita, people who desire and deserve better education for their children, and who deserve the same opportunity tuition-wise. He stated that absorption into the state system would result in lower tuition for the students at Wichita University, bringing equal opportunity to those in the Western area. In discussing tuition rates, it was pointed out that "non-resident" student at Wichita University means outside Sedgwick County as well as out-of-state, whereas at KU and KS it means simply "out-of-state". This means that any Kansas resident outside the Wichita University boundaries must pay the additional tuition fee at WU.

Dr. W. D. P. Carey spoke in favor of S.B. 151 and 152, stating that as an educator of considerable experience, it was his feeling that with the increasing number of students, the state had an obligation to provide higher education for this area and that it should be done without duplication and overlaps; that it is desirable to have the best at the least cost to the taxpayer and that since the existing facility is a fine one and a going concern that the state was indeed fortunate to have such an offer. Several of the committee inquired as to the intent and purpose of certain sections of the measure. Mr. Ford inquired if the inclusion would draw students away from the existing colleges and universities and Mr. Carey felt that it would not be significant at least, and that the majority of the students would come from the area where the facility is located.

Mr. Hughes spoke again, defining university and college, and made additional remarks concerning the inadvisability of duplication and reiterated that it would not, in his opinion, draw strength from the existing state schools, but would simply provide the facilities for the additional thousands of students who will be seeking higher education in the future. Again, members of the committee asked questions, and in particular, mentioned certain sections of S.B. 151. Mr. Brick replied in detail, line by line.

Mr. Rollo Clymer of El Dorado spoke in favor of this legislation, appealing to the spirit of the citizens of Kansas in the support of this measure, or some measure, providing equal opportunities for all of the youth of the state.

Mr. Robert Morton was requested to answer questions concerning the proposal, and he stated that he was not on the staff of WU but did know something about the measure. Again, after inquiries by members of the committee, Mr. Morton replied to certain aspects of the bill; saying that the approximately \$180,000 unspent money for the 61-62 fiscal year was simply normal operating money and was needed as working capital; that the money received on the tax levy comes in late and all at once and appears to be a considerable sum but that it is not surplus. Concerning out-of-state students and an apparent discrepancy in enrollment, Mr. Morton pointed out that part-time students come under this also, and if someone elected to take a course, their last school was listed even though they might have been a resident of Kansas for 30 years, but they are still listed as out-of-state because of their last school attended. It was established that there are 5900 plus students enrolled at WU, 4100 of which are full-time. Also, the utilization of the various facilities was discussed and it was pointed out that all of the campus facilities are utilized for student use. Regarding tuition, it was stated that a resident student pays \$187.50 but a non-resident pays \$238.00; that out-of-county is treated the same as out-of-state.

Mr. Gardner of Wichita University, explained what the university proposed to do about the faculty retirement program, stating that the state would not be asked to give credit for the years previous to the time of absorption by the state, so far as the state retirement program was concerned. It was established that the dollar investment per student, was about \$2600.00. Mr. Gardner again reiterated that although the tuition at WU is higher than at state colleges and universities, that actually the problem is in the future; that as the needs increase, so must the tuition and that the city of Wichita should not be expected to foot the bill.

The meeting was recessed to Room 533 where the Chairman discussed H.B. 168 by explaining that the committee had recommended it favorably without knowing that Municipalities Committee had amended it. He asked a withdrawal of previous action and then Harlow Brown moved that 168 be recommended favorably, as amended. Mr. Wallace seconded the motion and it carried unanimously. The Chairman announced that opponents to SB 151 would be heard on Feb. 19th, and that on March 5th the Committee would hear a group on HCR 13. The Committee voted to hold the hearing in room 529, instead of at the auditorium as requested by proponents of HCR 13.

Meeting was adjourned.

NAME	ADDRESS	REPRESENTING
R. C. Clymer	El Dorado, Ks.	
R. D. Criss	Augusta Kan	
W. D. P. Carey	Hutchinson, Kansas,	
Mrs Alfred Griffith	Wichita, Kansas	
E. L. Malone	Wichita, Kansas	
Bill E. Gravelly	Wichita, Kansas	
Kenneth A. Kitchin	Wichita Kansas	
Don Kendall	Hutchinson	
Mrs F. H. Heller Lawrence	for League of Women Voters of Wichita	
Edw. Gilland	Levied Ks.	
Mike Harder	Wichita	
Wm. C. Boyant	Wichita	
Johanna M. Lopez	Wichita	
Mark Howard	Manhattan	
Tony Casada	Wichita	
Samuel Gardner	Wichita	
Judy Aiken	Wichita	
Ad Smith	Topeka	
K. Zimmerman	Wichita	
Joe H. Blaisdell	Wichita	
Marvin B. Clark	State Rep.	
Thomas A. Gruver	Scott City, Ks.	113 Dist

MARTINDELL CAREY HUNTER DUNN & BRABETS

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HUTCHINSON, KANSAS

5 December 1962

Honorable John Anderson, Jr.
State House
Topeka, Kansas

Dear John:

I was pleased to see and read your statement concerning Wichita University. I agree completely.

As a member of the Boards of Trustees of Cornell University and Marietta College and otherwise, I have observed that the administration of any institution of higher learning is complex. That's particularly true of universities having a considerable number of students such as Kansas University or Kansas State University, or Wichita University.

Besides being firmly of the view that remote control would be highly inadvisable and that joint control by KU and KSU would be unthinkable, I suspect that those responsible for the administration of the affairs of each KU and KSU now have hands full, without adding to their burdens.

Coordination of the programs of the various state universities and avoidance of improper duplication can, of course, be handled very easily and effectively without adding to the complexity and burdens of administration and creating a most unfortunate, if not impossible, administrative setup.

With best wishes to you and yours for a Very Merry Christmas and Happiness and Health in the New Year and the years which follow, I am

Yours very sincerely,

W. D. P. Carey

WDPC lh

MEMBERS OF THE STATE AFFAIRS COMMITTEE

+ The Ways + Means Committee

I am glad to be here this afternoon, and to tell you that I ^{*to have the opportunity*} favor strongly and enthusiastically the passage of Senate Bill No. 151 and 152 providing for the incorporation of the University of Wichita into the state system of higher education in Kansas. When Governor Anderson announced his support of the proposal, I wrote him on December 6, 1962 as follows:

(Read Letter) *(Attached)*

I have no personal affiliation with Wichita University. However, I am a Kansan and am anxious to have Kansas and Kansans do a proper job and discharge properly their obligations and responsibilities with respect to higher education - now and in the future, and I have seen and admired the outstanding job that has been done by Wichita University and the able and dedicated men and women responsible for its building and administration.

The record of the University of Wichita in the past decade speaks for itself. The demands produced by ever increasing enrollments have been met by the judicious planning of facilities and by the effective recruitment of strong faculty and staff, and by establishing and following sound management and financial policies. The University's financial statement, and the management record which it reflects, would be a source of pride to the executives or board of directors of any good business.

Kansas, like the other states in the Nation, has seen, is seeing and will continue to see a substantial increase in the demand for university and college education. This is due to the increasing number of young people of college age, the increasing percentage of highschool graduates able to go to college full time, and the increasing number of students

attending college part time.

In Kansas, we must develop, for the next generation, a system of universities and colleges which will provide diversified educational opportunities for people of varying abilities, interests and needs and geographically diversified educational opportunities which will provide for the needs of students, and of industry too, in every part of the state. This is recognized, I believe, by all thoughtful citizens of our State and is, in effect, what the Eurich report says.

We want to accomplish this program, in all of its phases, in the most orderly and efficient manner possible at a reasonable and practical level of cost to the taxpayers of the State of Kansas as well as to the students. The establishment of Wichita University as a State University under the control and direction of the State Board of Regents fits perfectly into this program. That is just what Senate Bill No. 151 does.

As the Eurich report says concerning Wichita University, "The State is fortunate indeed in having this institution available to incorporate within its system of higher education to serve the educational needs of the young people. If it had not been built the State would now have to build facilities to serve the Wichita area."

Wichita University is an established university - a well operated going concern - with 65 years of splendid tradition, fine accreditation, and sound academic achievement. Aren't we fortunate indeed to have this fine University - ready made and operating - to incorporate into our system as a State University!

What a mistake it would be to follow the suggestion of the Eurich report and downgrade Wichita University into a so-called Universities Center and make a mess of its administration!

Wichita University has approximately 6,000 students now - it is a big university - and the number of its students is bound to increase. As I said in my letter to Governor Anderson, the administration of any institution of higher learning is complex. It is much more complex than the operation of a large business. It requires day by day, even hour by hour, on the ground responsibility and attention to administration - not remote control divided between the heads of two other Universities or absentee direction by a cumbersome board of eleven persons, ten of whom are located elsewhere, completely detached and fully occupied with other responsibilities and duties. In my opinion, it doesn't make sense to insert such an awkward layer between the State Board of Regents and the actual operation of the University of Wichita.

Senate Bill No. 151 provides for the incorporation of Wichita University into our State system in a direct and orderly manner. By its language, the bill provides that the State Board of Regents shall have the power to appoint the President of the University, to prescribe the powers and duties of the President and the head of each department and to determine and prescribe the university curriculum, the degree and certificate program, the standards for admission of students, student fees and the graduate and doctoral programs, and it provides that the State, through its Board of Regents, shall have actual possession, jurisdictional and operational control, management and full operational responsibility of the University of Wichita. That is as it should be.

Senate Bill No. 151 is direct, clear and unequivocal in giving the State Board of Regents complete control. In view of this, I was shocked to learn that the Kansas City Star had suggested that passing Senate Bill No. 151 "in its current form would create an intolerable situation for the Regents".

We all recognize that we must add to our higher education to take care of the needs of our students of today and tomorrow. In doing so, we must provide educational opportunities, diversified geographically and otherwise, for students of widely varying abilities, interests and needs. Universities and colleges of different character and with different curricula are required for this. *(Wichita University is an urban university - different and distinctive.)* It is the responsibility and duty of the State Board of Regents to give constant and continuing attention to this, to avoid unnecessary duplication and to assure proper coordination of the programs at the various state universities and colleges. Senate Bill No. 151 gives the State Board of Regents full power and control in this regard, and therefore, makes Wichita University an integral part of the system by which additional educational opportunities can be provided as required.

I hope that you will act favorably on Senate Bills No. 151 and 152 and that they will be passed *in their present form* and become law without delay.

1960 United States Census Data Through Age Nineteen
Sedgwick and Contiguous Counties
And Relationship of Population in This Area to State of Kansas as a Whole

Age	COUNTIES							Total Sedgwick and Contiguous Counties	State of Kansas	% of Kansas Children Residing in Sedgwick & Contiguous Counties
	Butler	Cowley	Harvey	Kingman	Reno	Sedgwick	Sumner			
4 and under	4,383	3,521	2,744	1,051	6,631	45,714	2,568	66,612	246,122	27.1
5 thru 9	4,188	3,549	2,730	1,087	6,172	39,693	2,618	60,037	228,159	26.3
10 thru 14	3,768	3,235	2,319	981	5,414	32,282	2,491	50,490	198,031	25.5
15 thru 19	2,728	3,029	2,049	736	4,562	22,787	1,721	37,612	157,370	23.9
Totals	15,067	13,334	9,842	3,855	22,779	140,476	9,398	214,751	829,682	25.9

ENROLLMENTS - UNIVERSITY OF WICHITA

Ten Year Interval 1952 through 1961

<u>Year</u>	<u>Actual First Semester Enrollment</u>
1952	3040
1953	3319
1954	3848
1955	4392
1956	5470
1957	5704
1958	5746
1959	5875
1960	5657
1961	5751 (as of October 11, 1961)

PERCENT OF HIGH SCHOOL GRADUATES GOING ON TO COLLEGE

<u>STATE OF KANSAS</u>		<u>SEDGWICK COUNTY</u>	
<u>Year</u>	<u>Percent</u>	<u>Year</u>	<u>Percent</u>
1959	44.3	1959	46.0 *
1957	41.0	1957	52.9
1955	40.4	1955	51.6

Figures through the courtesy of Dr. Alex A. Daughtry,
Kansas State Teachers College, Emporia.

- * Tuition for out of City students was raised from \$10.00 per credit hour to \$12.50 per credit hour effective with the fall semester of 1958. In the fall of 1959 tuition was increased from \$10.00 per credit hour to \$12.50 per credit hour for residents of the City of Wichita and from \$12.50 per credit hour to \$15.00 per credit hour for students whose residence was outside of the City of Wichita.

TUITION AND OR FEES
 As Established For Fall Semester Academic Year 1961-1962
 UNIVERSITY OF WICHITA
 AS COMPARED TO STATE SCHOOLS OF KANSAS

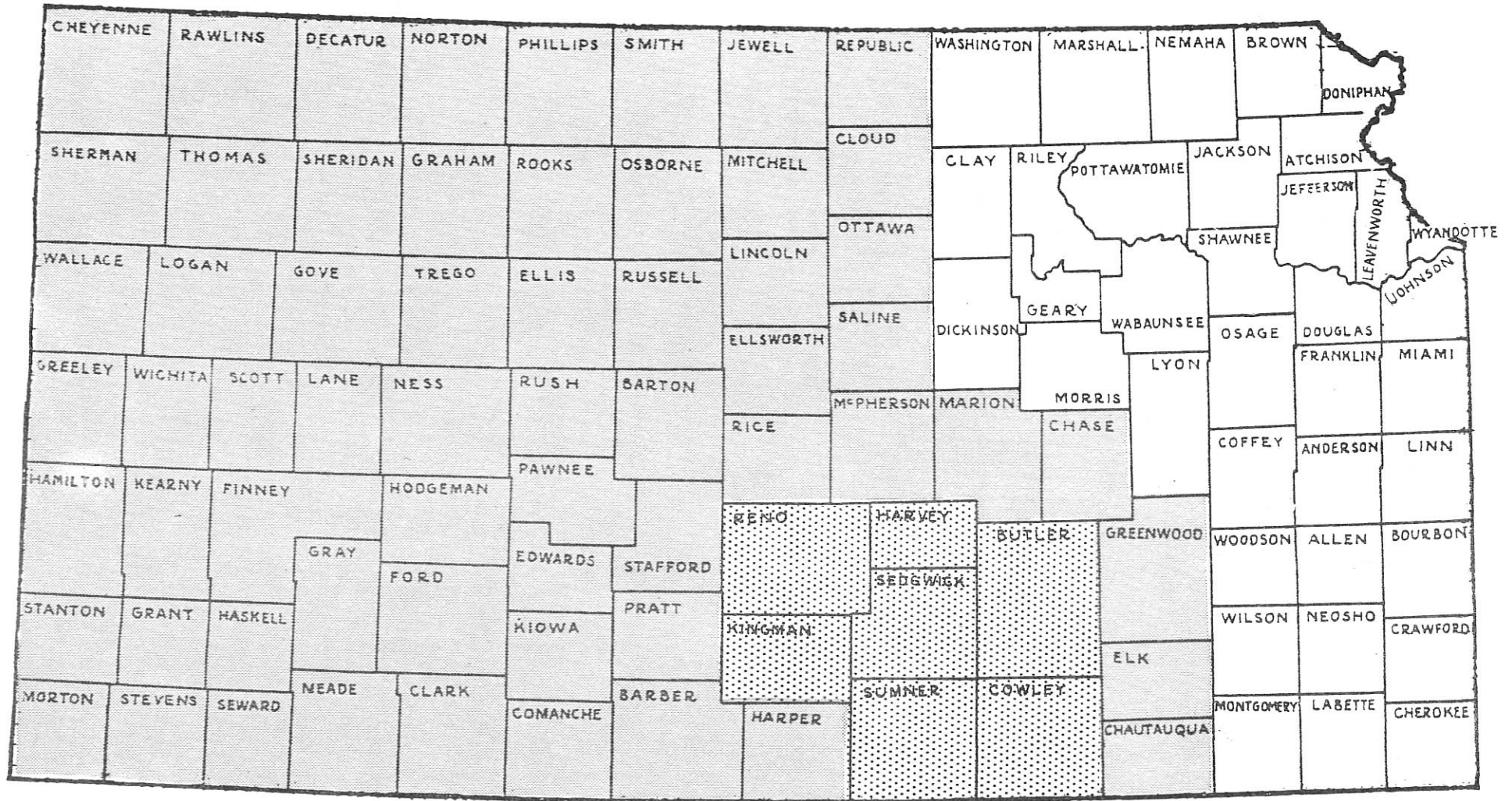
*State Schools
 raised slightly
 for next year*

<u>UNIVERSITY OF WICHITA</u> (Students Carrying 15 Hours)	<u>Resident</u>	<u>Non-Resident</u>
Tuition	\$187.50	\$225.00
Student Union Fee	7.00	7.00
Library Fee	5.00	5.00
Parking Fee	1.00	1.00
	<u>\$200.50</u>	<u>\$238.00</u>
 <u>UNIVERSITY OF KANSAS</u>		
Incidental Fee	\$ 70.00	\$225.00
Health	12.00	12.00
Union	10.00	10.00
Activities	12.00	12.00
	<u>\$104.00</u>	<u>\$259.00</u>
 <u>KANSAS STATE UNIVERSITY</u>		
Incidental Fee	\$ 70.00	\$225.00
Health	10.00	10.00
Union	7.50	7.50
Activities	16.50	16.50
	<u>\$104.00</u>	<u>\$259.00</u>
 <u>KANSAS STATE TEACHERS COLLEGE - EMPORIA</u>		
Incidental Fee	\$ 50.00	\$110.00
Health	4.00	4.00
Union	8.00	8.00
Activities	12.50	12.50
	<u>\$ 74.50</u>	<u>\$134.50</u>
 <u>KANSAS STATE COLLEGE OF PITTSBURG</u>		
Incidental Fee	\$ 50.00	\$110.00
Health	4.00	4.00
Union	5.00	5.00
Activities	12.00	12.00
	<u>\$ 71.00</u>	<u>\$131.00</u>
 <u>FORT HAYS KANSAS STATE COLLEGE</u>		
Incidental Fee	\$ 65.00	\$113.50
Health	4.00	4.00
Union	7.50	7.50
	<u>\$ 77.00</u>	<u>\$125.00</u>

The above tuition and or fees are for one semester.

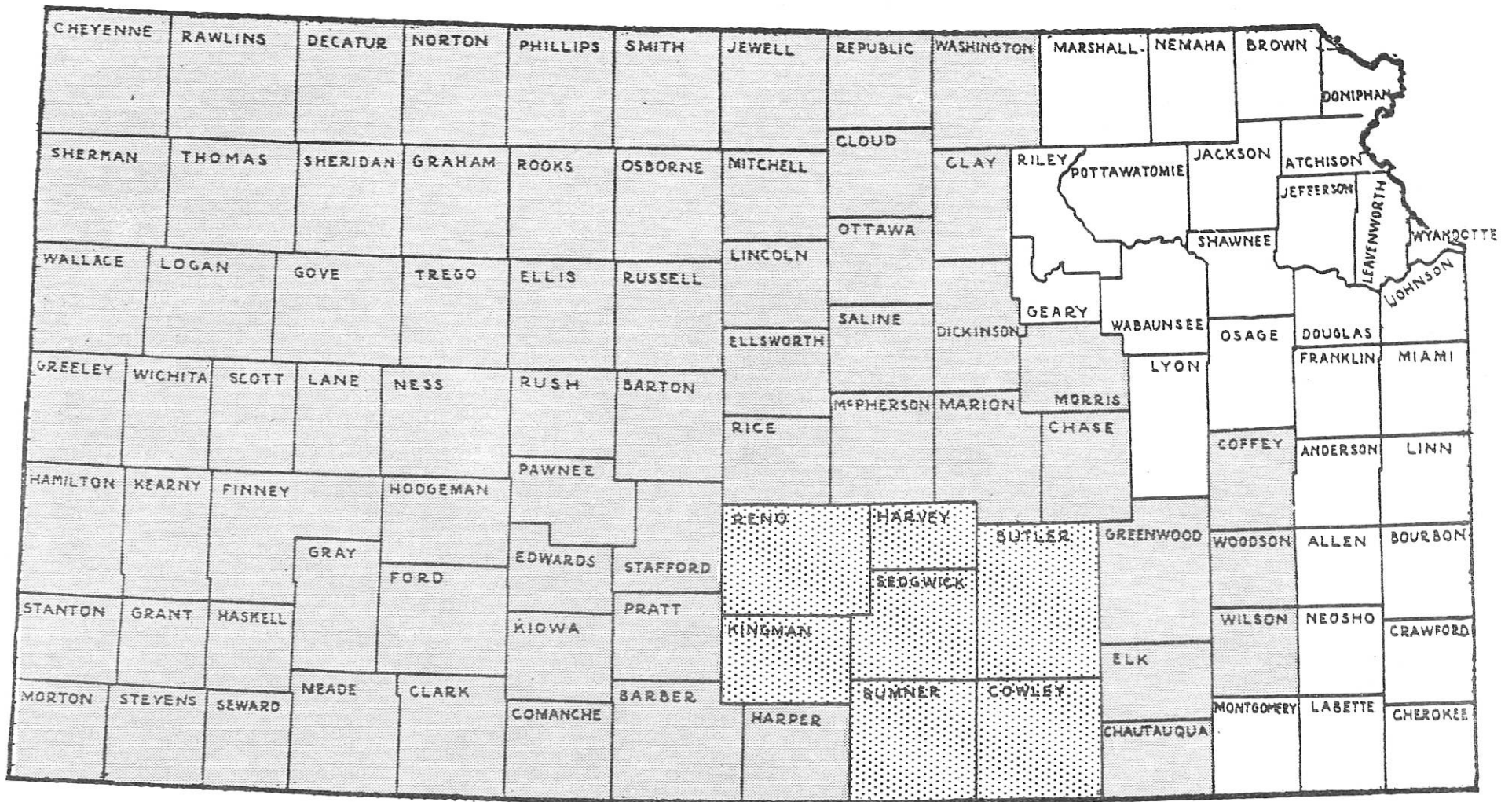
SEDGWICK AND CONTIGUOUS COUNTIES HAVE AS MANY SCHOOL ENROLLMENTS

GRADES 1 TO 12 AS THE 62 COUNTIES SHADED



Source: Comprehensive Education Survey of Kansas Summary Report - Figure VII, Page 53.

SEDGWICK AND CONTIGUOUS COUNTIES HAVE AS MANY YOUNG CHILDREN
 UNDER FIVE YEARS OF AGE AS THE 69 COUNTIES SHADED



Source: 1960 Census of the United States.

EDUCATION AND ITS RELATIONSHIP TO INDUSTRY

My assignment is to give you in ten minutes a brief summary of material which has previously been developed by a number of people well informed on the subject of interest to us now. Since I obviously cannot do it full justice, I urge that as soon as possible you carefully read the material in the looseleaf notebook with particular reference to that part relating to the relationship of education and industry.

I think we might loosely say that we are here today because of two accidents; first, that the larger population concentration in Kansas did not stay in the northeastern part of the state where the two state universities were established nearly a hundred years ago, and second, that more than one-fourth of all under college age school children in Kansas were born in or now live in Sedgwick and the immediately adjoining counties. Since this percentage is higher in the lower age children, it is obvious that the problems created by failure of the state to provide facilities for higher education in Central Kansas will become more acute.

The provision of good state universities several hundred miles away is not the answer, for if these 215,000 school age children in Sedgwick and adjoining counties go to college, a major part of them must either live at home or work part time or both. Approximately 80% of the students at Wichita University work at least part of the time. This same opportunity cannot be afforded students at Lawrence, Manhattan, Emporia, Hays or Pittsburg because these cities combined have only about a third the number of jobs in Wichita. Since more than half of the students of four of the five state colleges and universities in Kansas come from within a radius of fifty miles of the school and since most of the students

must have at least some work, it is obvious that education facilities must be brought to this populous area or most of the children will not get a college education. Since there is a definite correlation between education and personal income and between education and industry, it must follow that lack of adequate facilities for higher education will have a serious adverse impact upon this area of Kansas.

While statistics would probably show that Kansas has produced its per capita share of college graduates, they would undoubtedly also show that, compared with the industrial Northeast and the Far West, we have not produced our share of graduate students, particularly doctors in business, the arts and sciences. Further, those produced in universities located in small cities, having no employment opportunities there, have largely left the state. We have exported our most important product, for the egghead of yesterday has become the bread and butter man of today. The time is gone when an industry which requires a substantial employed force and whose well being is based upon keeping up to date or out in front with a product requiring scientific research and application can locate or long remain in a city which does not have a strong university, offering graduate study and degrees in the sciences and business. Witness the fact that great industrial complexes employing hundreds of thousands of people have sprung up around the great universities in Boston and Los Angeles, despite the fact that as places for pleasant living in an atmosphere of low taxes and good business climate these cities must rate lower than average. Recognizing their deficiency in this respect, leaders in the Dallas-Ft. Worth area are raising \$20,000,000 to start a research facility there to train doctors in the sciences who will stay in that area and help them provide jobs. Whether we recognize this in Kansas, and what we do about it, will probably determine whether we progress or regress in the next half century.

Let me be more specific and apply this to our own operation. We have thousands of employees who, when they completed their educations ten, fifteen, twenty or more years ago, had received the very latest information in their fields available at that time. Many of them are now supervisors, middle or top management people. In numerous fields the state of the art has advanced so rapidly that the newly hired young college graduates whom they supervise sometimes seem to speak a different language. Many of these people who have added experience, maturity and judgment to a now yellowing diploma, need to and would like to be brought up to date with some graduate work, but this can be done only if there is a university in the immediate area which offers the needed educational courses on a part-time or evening basis. These employees cannot leave their jobs and their growing family responsibilities to go away to school for one, two or three years advanced study.

Our company recognized the importance of graduate study as far back as the fall of 1952. Since that time we have made payments of tuition, fees and incidental expenses of employees.

Starting in 1956, because of our increased need for adequately trained personnel and to assist Wichita University in securing additional graduate professors, we made a series of payments which in the next five school years totalled nearly \$200,000.

As an indication of the extent to which employees are pursuing graduate studies, a recent check showed 1,046 in The Boeing Company were enrolled in this activity; however, only 152 of these people were studying at the University of Wichita.

The great majority were enrolled in the Seattle area where the facilities of the University of Washington are available. In the 1960 fall semester, 161 graduate

student employees were enrolled at the University of Wichita. In the spring semester, 149. Three of this number received a Master's Degree in the spring semester. It is of interest to mention that two of these were over 40 years of age.

Related to the problem of updating the capabilities of present employees is that of recruiting new and capable ones. A rather high per cent of men students now are married and some have children by the time they have completed four years of college work. Much as they may wish to obtain higher degrees through graduate study, most are faced with the economic necessity of getting a job and supporting the family. Consequently, when we try to compete for the best of these young men we are met more and more with the question, "Can I take graduate work at the University of Wichita?" In some fields we can, of course, answer in the affirmative, but in too many cases a necessarily negative answer loses the man, perhaps to a competitor. For instance, if he wishes to work in the aircraft industry, he can work for Lockheed at Marietta, Georgia, and go to Georgia Tech.; for North American, Douglas or Lockheed in Los Angeles and have a choice of several good universities there; for Consolidated or Ling-Temco-Vought in Texas and go to T.C.U., or S.M.U.; for Republic and go to one of the universities in the New York area, or if he desires to work for Boeing, he can get employment in one of the Seattle area divisions of the company and continue his education at the University of Washington. In fact, the aircraft plants in Wichita stand alone in the entire industry in their inability to offer this particular advantage, in full measure, to their present and prospective employees.

Here are some specific examples of skills lost to Wichita: Warren A. Murray was given a management transfer to Seattle for advanced educational purposes. M. U.

Ayers accepted employment at Convair, Fort Worth because of inability to get a M.S. at Wichita University in his field. Floyd Johnson rejected a job offer because of inability to obtain a M. S. in Electrical Engineering at the University of Wichita. He is employed by Hughes Aircraft, Culver City, California. William Simkins wanted additional educational opportunities not available at the University of Wichita. He left the company to study at Purdue.

Without expanded educational opportunities we lose the capacity to create the new and advanced products and services so necessary to maintain our position in a highly competitive industry. It is impossible to say just how much our present difficulties are caused by insufficient educational facilities. In plain words, without full educational advantages we lose our ability to establish new jobs or to maintain old jobs in Kansas.

Before closing, I should like to make clear that none of my remarks are intended to reflect unfavorably on the quality of the services in the field of education which are offered by the University of Wichita as it now operates. In those areas in which we have been able to make meaningful comparisons we are convinced they rate very highly. It is only that the university's limited financial means do not now, nor will they in the foreseeable future, permit the institution to offer graduate work or research facilities on the level which we think are and will be necessary to support present and any prospective new industrial operations in the area. We believe that, regardless of other considerations, Kansas must encourage industry with adequate educational facilities in populated areas or be prepared to see an increasing portion of these vital growth activities going to states which provide this essential support.

June 3, 1961

EDITOR'S NOTE: Few scientists write formulae for man's tomorrows in letters as large as those of Lloyd Viel Berkner, intellectual father of the International Geophysical Year. Berkner drafted the scheme of military technology on which NATO rests. He outlined the system of Science Attaches employed by the Department of State to hold America abreast of discovery abroad. He proposed the Federal Department of Science that has been debated in Congress for the last five years. He sat on the Science Advisory Committee of President Eisenhower, and headed the seismic study panel that opened the first realistic path toward atomic peace. He ran Associated Universities, the Ivy League combine responsible for Brookhaven Laboratory, from 1950 to 1960. He currently chairs the Space Science Board of the National Academy of Sciences. On this and following pages he tells of the latest and most fundamental of all his missions: organization of the Graduate Research Center of the Southwest. The immediate purpose of the Center is to restore the pride of an intellectually backward region. Through that restoration certainly will come a new dignity and responsibility for the working of democracy.

RENAISSANCE IN THE SOUTHWEST

Science Brews New Respect for the Intellect on a By-passed Frontier

By LLOYD V. BERKNER

PRIOR to the year 1930, graduate education was required primarily to satisfy the intellectual needs of the scholar and the teacher who would explore abstruse nooks of human knowledge. Even in the 1930's, the impact of the doctor of learning on the affairs of the community and the nation was remote. A few such men, dubbed egg-heads, were noticeable in Franklin D. Roosevelt's administration to the amusement of the nation, and some few scientists were recognized as contributors of ideas that had benefited mankind generally. But as late as the 1930's, the main stream of thought in industry, defense, and government flowed in the same "practical" channel it had followed through the ages.

But the makings of a mighty change were at hand. The principles of relativity and quantum mechanics, known for a generation, slowly absorbed and synthesized scattered ideas of the preceding three centuries of objective science to give us an entirely new grasp of physical reality. The new philosophy invaded every field of human endeavor. In World War II man demonstrated power to command nature to do things that would have been incomprehensible before. And in the ensuing decade the atomic bomb, the jet plane, the rocket, the electronic computer, and space flight have become commonplace.

These explosive developments have set the stage for even more spectacular developments in the 1960s. Immediately ahead of us, in clear sight, are unlimited and cheap long-distance communication, entirely new sources of electric power derived more efficiently without rotating machinery, structural materials radically different from those we have depended on since Babylonian times, planetary exploration with its implications of opportunity to examine life under a radically different evolutionary ecology, and a biochemical/mechanical understanding of all living organisms including man.

There is hardly anything that man has done that the new science cannot tell us how to do better. We are, therefore, in the beginning of a revolution in the character of industry. Technology emergent from the new science is replacing the primitive empirical knowledge of the "practical" man. Before, the need for men of the doctoral level of intellectual development was not apparent in day-to-day life of the community; the requirement for men of great intellectual skill has become obvious to all since the triumphant Russian launching of Sputnik I on October 4, 1957. The sudden appointment of a science advisor to the President of the United States signified the realization that the old "practical" approach was no longer sufficient for a people's safety and welfare.

I would emphasize that this demand for men at the post-doctoral level is not just a whim of competitive industry for more power. The need reflects a change of very deep social significance. As industry moves rapidly into the new technological phase, older industries that continue to depend on the practical experience of earlier centuries become shallow and ineffective. Those industries must gradually, and sometimes not so gradually, give way to new processes, new materials, new methods, new products. It is significant that more than thirty "blue chips" of thirty years ago have since disappeared from the stock market.

Naturally, the new industry springs up in the geographic regions where men of the most suitable intellectual backgrounds are available. As Dr. Ronald McFarlan, past president of the Institute of Radio Engineers, recently remarked:

"Large concentrations of able academic scientists and engineers placed in geographical proximity with their equally able industrial counterparts can produce very rapid economic growth in the areas concerned. One has only to look at the Boston-New York-Philadelphia electronic axis, or at its San Francisco-Los Angeles counterpart to substantiate this statement."

Another characteristic of the new industry bears on the problem of social change. Technological industry em-

Region	Numbers	Percent
Northeast	3299	39
North	3055	36
Far West	1257	14
Southeast	519	6
Southwest	417	5
	8547	100

About 4500 of these 9,000 Ph.D's, who must do our most significant scientific work, come from seven states:

State	Number	Per million population
New York	1299	84
California	845	81
Illinois	722	83
Massachusetts	577	127
Pennsylvania	468	43
Michigan	439	73
Indiana	415	85

These seven states produce, for each million of population, about eighty-two Ph.D's each year. The national average is forty-eight. The average for the six Southwestern states, I suppose because of their later emergence as states, is twenty-two. Here are the figures by states:

State	Number	Per million population
Texas	215	23
Louisiana	92	30
Oklahoma	71	31
New Mexico	16	19
Arkansas	14	8
Arizona	9	8

The rate of achievement of learning at the doctoral level in the Southwest is therefore far below the national average and almost negligible when compared to the ten leading states.

Of course, you may say, the young men and women from the Southwestern states go outside for doctoral training, and some do. But statistics of the National Science Foundation show that less than 1,000 of the Ph.D's graduated from all universities each year attend universities more than 500 miles from their homes. Other statistics of the National Research Council and of the National Science Foundation show that less than half as many intellectually qualified high school graduates from the Southwest reach the doctoral degree as do high school graduates in the Northeast, the North or the Far West. So we in the Southwest have a huge reservoir of talented young men and young women who could be trained to turn science to the advantage of the Southwestern community.

Now graduate education is inconceivable without extensive opportunity for

employs men of higher skills to supervise more efficient methods and processes. Consequently we hear of technological unemployment. I would make this point:

As the new technological industry takes over, the technological unemployment will become chronic and endemic in those geographical regions where education fails to provide the brain power to develop new technological opportunities for employment.

With the population explosion massing people in the cities, only those regions will be economically healthy that have the intellectual power to exploit the new science and the consequent industry. Most certainly, those regions that fail intellectually will fail economically and become chronically poor and colonial to the intellectually advanced regions. This is the social certainty that the technological revolution of our century has made clear.

No longer is the doctor of learning a mere intellectual curiosity; his brains are essential to the economic and social health of the community. Every man who is not educated to the full extent of his creative ability is to the community a loss in terms of unemployment, of poverty, of human rights and lost opportunity. Higher learning therefore can no longer be solely an objective of the individual spirit. Education at the doctoral level of learning and higher is now a community neces-

sity for all who have the capacity to achieve it.

Well, you may say, does this not degrade the very purpose of learning?

I think, on the contrary, the stature of learning is elevated by this new atmosphere for the intellect. Where man previously subsisted at a low level by elementary and brutal methods of the muscle, he is now challenged to make his brain his centre of living. The whole community must depend on scholarly accomplishment. To me, this seems the highest form of intellectual achievement.

The powerful flow of philosophic thought of our century attests to the advance of man's intellect in this new atmosphere. If, at the moment, man seems in deeper trouble than ever before, it is because the defects of his earlier philosophy, reflected in the mirror of more advanced learning, face him with his real alternatives.

WHERE does the vast region of the Southwest (and here I mean the states of Arizona, Arkansas, Louisiana, Oklahoma, New Mexico and Texas) fit in this new dynamism?

In the forty-eight United States, we produce about 9,000 Ph.D's annually, about 790 of those in engineering and about half the remainder in science. By regions, this total broke down as follows in 1957-58, the latest year for which figures are available.

research. Yet modern research facilities are costly. The university must somehow find the funds. For it cannot escape the responsibility.

Already the deficiency in graduate education and research opportunity has a direct reflection in the industrial status of the Southwest. Recent studies with which I have been associated have found that several industrial research laboratories had considered coming to the Southwest and then located in the Northeast or Far West. One industrial leader concerned in this reversal explained: "The industry of the Southwest is becoming shallow for lack of a suitable scientific and intellectual climate." Five more industrial research activities have been about to locate elsewhere, but may reconsider if they see a general surge of graduate activity in the Southwest. Such laboratories are the seed from which new technological industry will rise.

Having become aware of this situation, community leaders and university educators of the Southwest are mobilizing to correct it. Their objective is to increase the number of doctoral degrees from Southwestern institutions from the present total of a little more than 400 per year to some number like 2,000 per year in a period of fifteen years—let us say by the year 1975. Advanced education in the Southwest would then be brought more nearly, though not yet completely, in line with the North, Northeast, and Far West.

TO accomplish this purpose, it is proposed to undertake simultaneously all of those measures that experience in other regions has shown necessary to attract and retain capable scientists and technologists. As a focus of action, the Graduate Research Center of the Southwest has been incorporated as a non-profit institution under a charter from the state of Texas. A campus site has been chosen between Dallas and Fort Worth. Ground will be broken in the autumn of 1961, and half a dozen or more buildings should be up within the succeeding three years. During the present formative period, the Center is headquartered as a guest of Southern Methodist University, which is now in the process of creating a Graduate Research Center of its own. Indeed, it was SMU's experience that suggested the need for an invigorated regional atmosphere in which individual schools could find respect and encouragement for the intellect.

If the southwest is to have 2,000 doctoral graduates a year by 1975, there will first have to be some 6,000 or 7,000 doctoral candidates in residence at the graduate schools. Proper instruction of these young people will require

some 1,500 professors on the doctoral graduate faculties of the region. All this must be entirely apart from the students and professors required to satisfy the needs for the master's degree and for other graduate and post-doctoral objectives. Nor can the liberal arts colleges be neglected.

How is this explosion of the mind to be controlled?

The Graduate Research Center of the Southwest has established a Division of University Cooperation to derive a regional plan from the individual fifteen-year plans of seventeen to twenty southwestern universities that are now expanding or are capable of expanding graduate education. Each of those universities will need to find means of acquiring research facilities and faculty for their own growth. It is the function of the University Cooperation Division of the Graduate Research Center of the Southwest to aid in this search, and to cut red tape that now entangles interchange of faculty among the several schools.

Not all institutions will decide to participate to the same extent. An early problem, then, is to determine what is feasible for each individual school to undertake during the next decade. Such questions as these must be asked: What should the image of university "A" be five and fifteen years hence? What should be the evolution of emphasis in its proportion of graduate to undergraduate education? Into what areas of knowledge can university "A" reasonably extend its efforts in light of existing faculty skills at a rate that does not diminish the level of scholarship? What costs will be involved for faculty and facilities in each of the planned fifteen years, and what should be the logical origin of the needed support from private, state and federal sources?

SMU has almost completed a study of these questions to guide its new Graduate Research Center. Texas A. and M. has just announced a similar study, to cover the next year. Tulane, Texas Tech, Texas Christian, Oklahoma State, and the University of Oklahoma are among other schools that have committed themselves to participation in the regional scheme.

The key to this ideal of a modern renaissance is diversity, with each university and its contiguous community assuming responsibility within the framework of its own self-interest to fulfill its part in the regional plan. But within this framework of independence and diversity is the determination of the academic community to create the intellectual climate in the region that can benefit all.

I emphasize that this climate can exist only on a regional scale. After

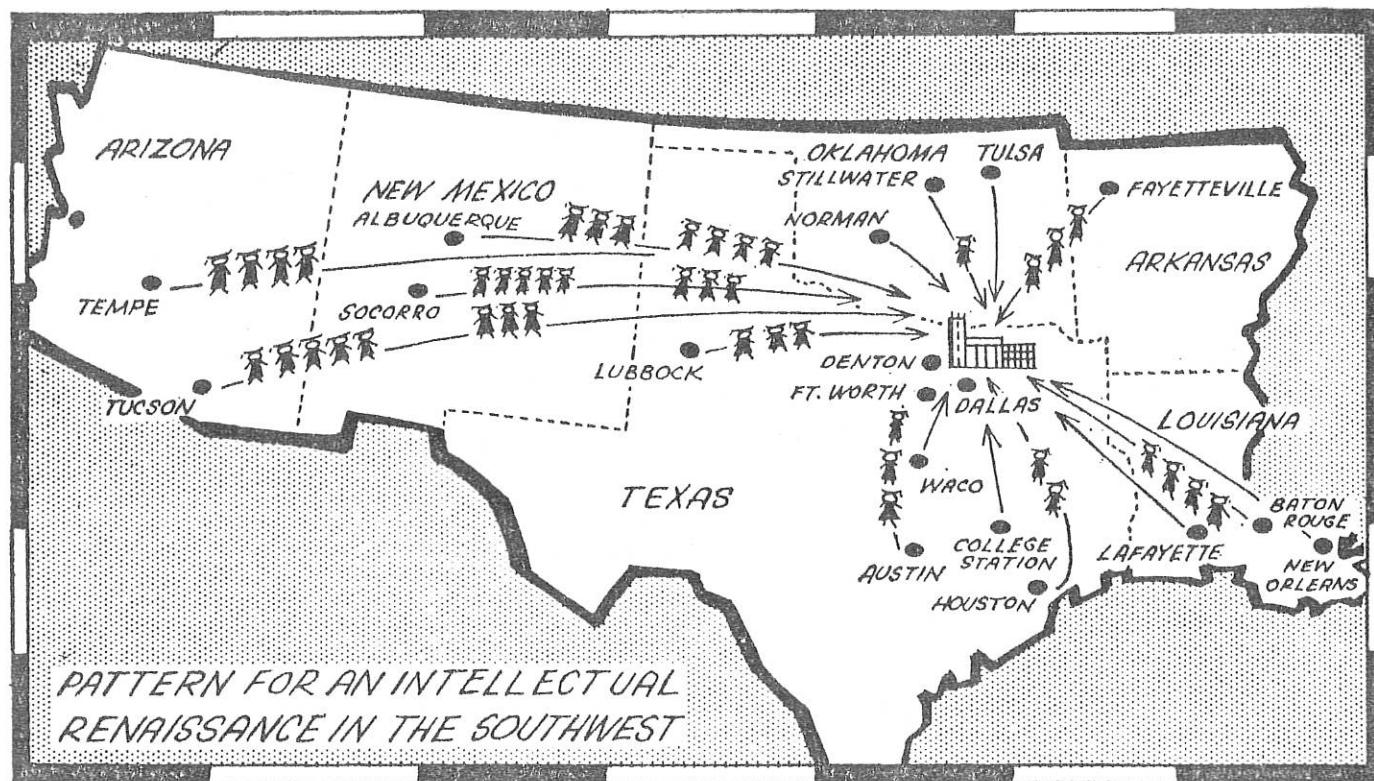
all, Harvard, with its world renowned distinction in learning, has risen in the midst of a strong intellectual atmosphere in the Northeast. I remind you that Harvard is surrounded by MIT, University of Massachusetts, Boston College, Boston University, Brown, Northeastern University, Radcliffe, Wellesley and Williams. Only a little further away are Cornell, Columbia, Pennsylvania, Penn State, Yale, New York University, Brooklyn Polytech, City College of New York, Stevens, Rutgers, Rensselaer and others.

IN the center of this whole complex in the Northeast is the Brookhaven National Laboratory, which, with its very advanced facilities, serves all the universities in the region. It provides to the faculties, and to distinguished scientists of industry, an opportunity for researches beyond the capabilities of their individual institutions.

The objective of Brookhaven is to supplement, not to duplicate, the research opportunities of the universities. Its purpose is to provide visiting faculties with facilities that are not available at their universities but are necessary to advancement of their research. Moreover, Brookhaven provides opportunity to attack long and difficult scientific problems continuously and with adequate staff and equipment.

In general, Brookhaven's specialized facilities are not suitable for any one university campus. Indeed, the great 33-billion volt nuclear particle accelerator is unique in the world. Its cost of \$32 million is an investment requiring continuous operation to justify. Consequently, no one university could supply the very large staff of scientific specialists and operators who must work around the clock without completely warping its other educational activities. Such a facility would "run the university" rather than the university running the facility. As a cooperative venture, however, with a few faculty members from each of many universities, such a facility can be employed with efficiency. Brookhaven has become indeed a university for professors.

I have expatiated on the Brookhaven experience for two reasons. My first reason is familiarity. I was affiliated with Brookhaven—itsself a university sponsored by nine northeastern universities—from 1950 until the end of 1960, when I accepted the presidency of the Graduate Research Center of the Southwest. My second reason for detailing the Brookhaven operation is that the Graduate Research Center of the Southwest will include an elaboration of the Brookhaven idea adapted to the needs of the southwestern region.



Alongside its Division of University Cooperation and linked closely to it, the Center will maintain a Central Research Facility for the purpose of conducting basic scientific research directed toward solution of problems in various areas of science not now well developed on the national scene. The Central Research Facility will consist of whatever number of divisions, departments or laboratories may prove to be appropriate. However, instead of following the traditional organizational pattern, with departments of physics, chemistry, biology, etc., the research objectives will be made the foci of organization, so that a department or a laboratory may embrace all or as many of the various disciplines of science as necessary to encompass the objective.

Among the initial working units of the Central Research Facility now being developed, for example, are:

A laboratory of all the sciences that bear upon an understanding of the Earth and the other planets of the solar system.

A laboratory that will bring together all available facts that might contribute to the creation of new materials.

A laboratory that will examine everything around us at the fundamental level of their constituent molecules.

A laboratory that will explore the knowns and unknowns of electronics and radiophysics.

Among the specialized research facilities will be a high-flux nuclear reactor to supply neutrons in support

of many aspects of research in the region.

As a fully accredited academic institution, the Central Research Facility is assembling a permanent staff with the usually recognized titles of the academic hierarchy, commencing with Research Professor. Ranks of Research Professor and Associate Research Professor will automatically qualify for permanent tenure, and will be supported in that status by the permanent funds of the Graduate Research Center of the Southwest.

THE Center must be qualified to grant but will not grant degrees. Research and training of advanced students will be done in close association with, and under the formal supervision of, those affiliated universities and institutions where the students are registered and from which they will receive degrees in recognition of their intellectual achievement.

To reinforce the cooperative effect, the Graduate Research Center will assume, as part of its regular operating budget, the costs of bringing a number of faculty members of affiliated universities and institutions into residence at the Central Research Facility for one or more years to carry on research. Such faculty members, when in residence at the Central Research Facility, will be designated as Visiting Professors or whatever lower rank corresponds to their current university appointments. This arrangement will permit the affiliated institutions to augment their

faculties correspondingly over the visiting interval.

Simultaneously, an exchange will take place in the opposite direction. All faculty of the Central Research Facility will be expected to teach advanced courses of their choosing equivalent to at least three semester hours annually measured over any two or three years. Some of this teaching will take place at the Central Research Facility, the remainder at other universities of recognized standing. Usually the courses will be without cost to the universities concerned. When undertaking such teaching, the Central Research Facility faculty will be fully responsible to the host university for maintenance of academic standards of the course and related examinations.

An initial endowment of \$20,000,000 is being sought to cover the cost of buildings plus operational expenses for the first five "founding" years of the Graduate Research Center of the Southwest. Private sources with pride in the region and faith in its future are coming forward generously. Among the givers are industrialists and industries willing to guarantee the Center's financial independence in return for the contribution they know the objectivity and impartiality of an advanced academic institution will make to their own fortunes. In this connection, I should not neglect to point out that the Center is authorized to hold patents and issue license under such patents but is committed not to engage in commerce or manufacturing. Being dedicated to

ENGINEER OF THE INTELLECT: JOHN ERIK JONSSON

He Designs Moneybags for the Superior Feeding of Brains

WHEN Erik Jonsson was a school-boy in Montclair, N. J., he had to parse the following sentence in English class: "Doctor Holmes once said Boston is the hub of the universe." Because of the number of times the teacher asked him to parse it, he judged that the sentence must be the hub of her universe. And Erik's own view of the universe was that it ought to be kinder and send more customers to his father's cigar store.

As time passed and his perceptions sharpened, Erik saw that only part of the universe revolved around Boston. That that part was not the part for him became apparent in the early 1930s. He left the Northeast then because he loved life and wanted to be active. As he recalls it "the only people who were active there were the ones who were jumping out of windows of upper floors of high buildings."

Erik came to the Southwest and has stayed ever since because "the Southwestern people are my kind of people. They believe in the future even when they can't see the future very clearly."

As often happens with such men, the future has grown to accommodate Erik Jonsson. (He takes some accommodating, being well over six feet tall—the top of his head having risen

through his hair to accent the impression of altitude—and broad in proportion.) In more than a manner of speaking, he has become the hub of a universe of his own. The size of this universe is difficult to measure, for it is constantly expanding. Contrary to the Biblical stricture, he seems able to add to its dimensions merely by thinking about it.

The Graduate Research Center of the Southwest serves well as an example of this growth phenomenon. Three years ago, more or less, it first became plain to him that oil and gas, though still plentiful in the ground beneath his feet, were finite in supply and the region had better begin to prospect its brains. Though he's never said as much, it takes no great feat of the imagination to suppose that the younger of his two sons, Kenneth, (departing from the mold set by the older brother and followed by a sister), shocked him, by leaving his father's beloved Texas and going to California to get a job that challenged Kenneth's mind.

Whatever the details may have been, Erik Jonsson was at that moment president of the Dallas Chamber of Commerce. A discussion arose in a Chamber board meeting over ways and means of combating advertisements

then appearing in Texas newspapers wooing Texas Ph.D's to intellectual compatibility elsewhere.

There were immediate proposals for direct action: Simply buy up all the available advertising space with Texas money. On longer deliberation, that course was seen to be self-defeating. Jonsson appointed a committee to consider the problem, and the committee came up with a scheme that called for Dallas industries to couple their research laboratory staffs into a kind of faculty for post-graduate education. Out of this came another plan for the industrialists to contribute to endowment of a Graduate Research Center at Southern Methodist University in Dallas. Jonsson laid down a chunk of his own money as a financial cornerstone for this institution, and used his influence as a mechanical engineer to get the advice of Dr. James R. Killian Jr., of Massachusetts Institute of Technology, and Dr. W. O. Baker, of Bell Laboratories. Killian and Baker both reminded Jonsson that he already had on the board of Texas Instruments (the prosperous electronics empire over which Jonsson presides) one of the boldest scientific innovators in America: Lloyd V. Berkner.

Berkner had been so occupied with the IGY and its after-math that Jonsson hadn't supposed him to be accessible, but that impression proved mistaken. Berkner acted with characteristic speed. Jonsson reacted even faster. After one exposure to Berkner's perspective, the Texas Instruments chief again moved the boundaries of his world outward to encompass a Graduate Research Center for the Southwest that would serve as a super-university—a university for professors—for the entire region from California's eastern border to the Mississippi River.

NOT since discovery of the east Texas oil field have we enjoyed anything so stimulating to our future prosperity as the plans for the Graduate Research Center of the Southwest," Stanley Marcus, the famous merchant,

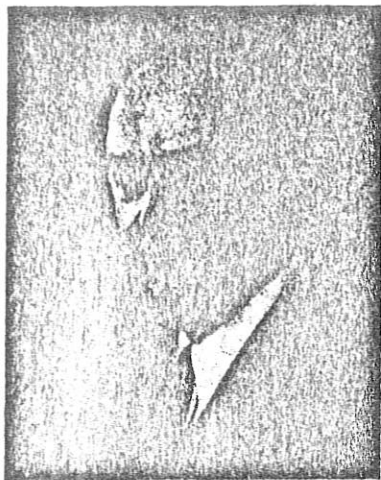
the increase of fundamental knowledge, it will, of necessity, move the practical by-products of its laboratories out into industry as rapidly as possible. Industry will share in the speedup of this process through association of its own scientists with the Center.

AT the end of the first five "founding" years, the Center should have earned its place in the region, and that place should justify the additional \$40,000,000 endowment plus annual contribu-

tions estimated to be necessary for its continuance in perpetuity. By maintaining itself with a steady balance of thirty percent private funds and seventy percent research contract fees, the Center will be free to encourage financial support of its affiliated schools. For a successful regional renaissance, these affiliates will need nine dollars for every dollar invested in the Graduate Research Center itself.

The faculties of the affiliated schools naturally will wish to speak for them-

selves as to the degree of their individual participation, their choice of study areas, the objectives they prefer to pursue alone or in concert with groups of other schools. Their announcements will come in due time. Already, however, the climate is beginning to change in response to their initiative. Members of the regional governing board of the Graduate Research Center of the Southwest will be announced on July 1. The first two laboratories of the Central Research Facility—labs for the study of



—Gittings.

John Erik Jonsson.

said in a recent conversation. "We owe it to the courage of Erik Jonsson."

Jonsson apparently had courage in his genes. If it has ever departed from him in his fifty-nine years of life, no one else is aware. Before he was old enough to understand the quality of this attribute, he moved with his parents from his birthplace in Brooklyn to Montclair after one of his father's chain of three cigar stores burned in a ruinous fire. It proved impossible to recoup the loss in another store near the Montclair railroad station. Consequently, Erik always had to scrape for pocket money. Like many boys in similar circumstances, he peddled newspapers and magazines, shoveled snow, picked cherries, delivered groceries. But the income from those chores was too scanty for his needs, and he sought a higher return on his investment of himself. A mechanical bent led him to a garage, the garage introduced him to engines, the engine carried him into taxicab driving, driving others taught him the joy of riding the open road, the road beckoned him onto a motorcycle, and the purchase of a motorcycle for \$150 launched him into the art of trading when he was thirteen years old. The associated art of budgeting he perfected through such small matters as adjusting the cycle's

carburetor whenever the sun was obscured by clouds.

In his eagerness to obtain the benefits of technology, Eric neglected the science behind it. And when the moment came for fulfillment of a dream to write, he couldn't get into journalism class at Columbia University for lack of credits in physics, chemistry, solid geometry and trigonometry. By an heroic reversal of logic that professional educators may have difficulty in explaining, he got into Rensselaer Polytechnic Institute without those qualifications and completed the four-year course in mechanical engineering in three years time.

Having had no schooling in prophecy, Jonsson could not at the time see the next eight years as years of waiting for the dawn of a new age that would welcome his peculiar talent. He saw only that the atmosphere around him was continually cold and bleak and grey. He worked in an aluminum rolling mill, made radios from parts at home, sold motor cars. Nothing he turned to gave him a good living. As much out of desperation as anything else (for he had married a pretty girl from Mobile meanwhile, acquired two sons, and taken over the support of his parents), he finally succumbed in 1930 to what everybody else thought were transparent blandishments of his wife's cousin's husband, a Texan named J. C. Karcher.

Karcher had a gadget that he claimed could determine with scientific accuracy where beneath the ground a man could find oil. It was a secret gadget, and Jonsson's job was to buy the necessary parts and put them together in a couple of rooms above a garage in Newark.

To the deep disgust of the scoffers, the gadget worked. It picked up sound waves coming back through the earth from precisely timed and measured explosions on the surface. The waves could be mapped, and from the maps the existence of salt domes could be determined. Salt domes often are bounded by oil and gas. The gadget

had been discerning enough to locate submarines in the water during World War I. Karcher, a veteran of the U.S. Bureau of Standards, was merely exploiting scientific discoveries with the financial backing of the later Everett De Golyer and the technical aid of Eugene McDermott. For men of courage, it was a sure thing. And in four years time Jonsson moved on from the little assembly depot in Newark to the Karcher-De Golyer-Mc Dermott headquarters in Dallas: Geophysical Services, Inc.

IN the standard terms of established technology, the record of contemporary engineering lists no major contributions opposite Jonsson's name. His pioneering has been done in a new sort of financial planning tuned to the explosive expansion of modern science. The Texas Instruments firm is a living case study of the method. It long ago outgrew the backstreet laboratory of Geophysical Services. During World War II, the U.S. Navy bought more than a million dollars worth of its electronic instruments. By 1960, the TI turn-over hit \$233,000,000. The system (for it is a system, as meticulously thought out and blue printed as a municipal aqueduct) is now the subject of periodic lectures that Jonsson (a member of the visiting committee of Harvard's Graduate School of Business Administration) gives by invitation to big business executive groups.

Generalists like himself can emerge only from the rough-and-tumble of a democratic society, Jonsson is persuaded, and democracy can survive only if there is a lively prodding of imagination in the schools. He looks back over his life and wonders how much further he might have stretched his own mind if he had not needed to cut studies to earn a living. Even with his grand scheme for the Southwest, he finds time to plan financing for growth of Rensselaer, Skidmore College (his daughter's alma mater), the Hockaday primary school in Dallas, and the Dallas Pilot Institute for the Deaf.

—J.L.

geophysics and of new materials—soon will be brought into existence in rented quarters in Dallas to work on fulfillment of contract research.

The scope of problems ahead must not be underestimated. With the Northeast and the Far West already well established in their thirty-year lead, Southwesterners of the highest capability will inevitably be under strong compulsion to migrate to where their talents might perhaps receive more sympathetic attention. Yet one cannot

underestimate the spirit of an aroused community.

I HAVE based my discussion of the importance of the Graduate Research Center of the Southwest solely on regional self interest. An equally compelling argument could be made in the national interest, involving the competition of our system of free enterprise in the cold war. The United States cannot meet the challenge of communism with educational oppor-

tunities for only half of its people in only three regions of the country: the Northeast, the North and the Far West.

Totalitarian endeavor to smother us through a scientific suzerainty cannot be permitted. This challenge is an intellectual one, to determine who best can advance human thought and turn it to the benefit of the community. I am happy to say that I believe that the Southwest is about to rise to this challenge of the advantages that flow from the command of ideas.