A Study of the Problems Involved in Opening Kaiser Engineers Branch Office in Chicago

Robert James King
Loyola University Chicago

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A STUDY OF THE PROBLEMS INVOLVED IN
OPENING KAISER ENGINEERS BRANCH
OFFICE IN CHICAGO

by

Robert James King

A Thesis Submitted to the Faculty of the Graduate School
of Loyola University in Partial Fulfillment of the
Requirements for the Degree of Master of
Social and Industrial Relations

June
1961
LIFE

Robert James King was born in Logansport, Indiana, May 8, 1932.

He was graduated from Fenwick High School, conducted by the Dominican Fathers, June, 1951. In February, 1956, he received his Bachelor of Science Degree from Loyola University. He began his graduate studies at Loyola University in February, 1957, upon completion of his military obligation.

The writer has been working for the past four years in the personnel management field.
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CHAPTER I

INTRODUCTION

A. History of Company

Kaiser Engineers was established in Oakland, California in 1941 as a division of the Henry J. Kaiser Company. Originally it was exclusively a service organization to the various Kaiser Industries in the diverse fields of aluminum and steel making, ship building, chemical processing, and automobile manufacturing.

Millions of dollars worth of work has been completed for clients since World War II in such a variety of industries as ferrous and non-ferrous metal production plants, chemical plants, power plants, and petroleum processing plants.¹

Kaiser Engineers occupies an unusual position in the engineering-construction field. They have recently acquired sole

¹Kaiser Engineers, This is Kaiser Engineers, (Oakland, Calif., 1956), p. 4.
rights to construct the Linz-Donowitz steel-making process in the United States. "The process uses a jet of high-purity oxygen directed onto the molten-metal surface in an upright furnace. This method is characterized by high-tonnage capacity, quality steel, and reduced operating cost."  

A comparison of the Linz-Donowitz process to the Open Hearth method, which is most commonly used in the steel industry today, was made by D. O. Davis, Vice President of Engineering, Dominion Foundries and Steel, Ltd., Hamilton, Ontario, Canada:

A shop containing four 250 ton open hearth furnaces will produce at an average rate of 100 tons of ingots per hour. On the other hand, an oxygen steel-making plant, with three 40 ton vessels--two on and one down for rebricking--working on 45 minute cycles can easily produce ingots at the same rate of 100 tons per hour...The oxygen steel plant, including the oxygen plant, can be built for less than 50 percent of the cost of the open hearth shop.  

The procurement of this new steel-making process created the need for a Chicago office, and it was established in July, 1959. The office is under the direction of a corporate...

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vice-president, and is divided into three departments. The following chart shows the organizational structure of the office.
FIGURE 1

ORGANIZATION--CHICAGO OFFICE
The Project Department makes the general arrangements with the client and acts as liaison between the client and the Design Department.

The Administrative Department, which includes the Personnel, Purchasing, and Clerical Sections, handles all non-engineering functions.

The Design Department works out the specific mechanical, structural, architectural, electrical, piping, and instrumentation details involved in the project. Actual construction of the project is not done out of this office. Construction is a completely separate operation. It is usually done by Kaiser Heavy Construction Engineers, but the client could employ any construction firm to do the actual construction using the blueprints developed by Kaiser Engineers.

B. Problem under Study

Kaiser Engineers, in its nearly twenty years of operation, has become a well established and highly regarded engineering firm, which has attracted and maintained specialists in all phases of engineering and administration. Even with this background, the Company encountered three major problems in opening a new office in Chicago:
1. The transferring of key personnel from the Oakland office to Chicago. This involved economic and social complications for the company as well as the men and their families.

2. The hiring of other engineers in order to fully staff the new office. With engineers at a premium, recruitment problems were created, due to the fact that Kaiser needed engineers with approximately ten years experience in steel plant construction.

3. Administrative problems including the hiring of a clerical staff, the assignment of duties, the purchase of office and engineering equipment, and the setting up of a system to coordinate the Chicago office expenditures with the Oakland purchasing and accounting departments.

C. Method of Study

The writer had full access to Kaiser Engineers' records concerning employment, salary, purchasing, and accounting procedures. Along with this information, the writer collected and analyzed material relative to the problem area through personal interviews and a questionnaire sent to the transferred Kaiser personnel.
CHAPTER II
ECONOMIC AND SOCIAL PROBLEMS INVOLVED
IN TRANSFERRING KEY EMPLOYEES

A. Best Employees Available

It is a natural assumption that when a company enters into a new venture, it will want to make use of some of its better employees, in order to insure the success of the project. This is exactly what Kaiser Engineers did when they permanently transferred thirteen of their best employees, and sent many others on temporary assignments in order to make sure that the Chicago office would operate in an efficient manner.

Convincing these employees that they should accept the transfer was quite a problem for Kaiser management. The employee was faced with the possibility that by accepting the transfer, he would be taking part in a venture that could grow to be as large as the home office. He would, thereby, be in line to move from the middle management level to the top management level very quickly. He was also faced, however, with some adverse
factors in accepting the new position.

1. Higher Cost of Living

The Bureau of Labor Statistics' Annual City Worker's Family Budget shows that the overall cost of living in San Francisco is lower than that of Chicago. The tables on the following pages illustrate this point.
# TABLE I

ANNUAL COSTS OF THE CITY WORKER'S FAMILY BUDGET IN 1960

<table>
<thead>
<tr>
<th>City and Suburbs</th>
<th>Total Budget</th>
<th>Food and Beverage 1/</th>
<th>Rent, heat &amp; Utilities 2/</th>
<th>Other Goods &amp; Services</th>
<th>Other Costs 3/</th>
<th>Personal Taxes 4/</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicago</td>
<td>$6,567</td>
<td>$1,751</td>
<td>$1,386</td>
<td>$2,470</td>
<td>$258</td>
<td>$702</td>
</tr>
<tr>
<td>San Francisco</td>
<td>$6,304</td>
<td>$1,795</td>
<td>$1,079</td>
<td>$2,467</td>
<td>$294</td>
<td>$669</td>
</tr>
<tr>
<td>Washington, D.C.</td>
<td>$6,147</td>
<td>$1,684</td>
<td>$1,226</td>
<td>$2,289</td>
<td>$258</td>
<td>$690</td>
</tr>
</tbody>
</table>

1/ Includes allowance for 4,156 meals at home, 212 meals away from home, alcoholic beverages, and snacks. Regional preference in the choice of foods to meet the budget standard were used in all cities except Washington, D.C. where the U.S. pattern was used.

2/ Estimated average rent, including cost of heat and utilities, of 5-room dwelling units meeting standards specified for budget.

3/ Includes allowances for life insurance; occupational expenses; Social Security deductions to disability insurance as required by State law in California and New York.

4/ Includes Federal and State or local income taxes at 1959 calendar year rates and per capita taxes as required by State or local law.

### TABLE II

**RELATIVE INTERCITY DIFFERENCES IN THE COSTS OF THE CITY WORKER'S FAMILY BUDGET**

**20 LARGE CITIES, AUTUMN 1959**  
*(Washington, D.C. = 100)*

<table>
<thead>
<tr>
<th>City and Suburbs</th>
<th>Total Budget</th>
<th>Food and Beverage 1/</th>
<th>Rent, Heat and Utilities 2/</th>
<th>Other goods and Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicago</td>
<td>107</td>
<td>104</td>
<td>113</td>
<td>108</td>
</tr>
<tr>
<td>San Francisco</td>
<td>103</td>
<td>107</td>
<td>88</td>
<td>108</td>
</tr>
<tr>
<td>Washington, D.C.</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

1/ Includes allowances for 4,156 meals at home, 212 meals away from home, alcoholic beverages, and snacks. Regional preference patterns in the choice of foods to meet the budget standard were used in all cities except Washington, D.C. where the U.S. pattern was used.

2/ Estimated average rent, including cost of heat and utilities, of 5-room dwelling units meeting standards specified for budget.

These tables were developed by the Bureau of Labor Statistics based on an employed husband with a wife and two children, living in a rented dwelling, with an income of $7,000 to $7,500 annually. Its purpose is to estimate the required income needs of such a family, to maintain an adequate standard of living.

The cost of the total budget in Washington, D.C. was $6,147 which was used as the base or hundred percent level; in Chicago, $6,567 which was 107 percent; and in San Francisco, $6,304 which was 103 percent. This shows that the total budget cost in Chicago is seven percent higher than in Washington; San Francisco is three percent higher.

Food and beverages are three percent lower in Chicago than in San Francisco. This, the Bureau of Labor Statistics says, is because Chicago is in the heart of the midwest farm belt.

Heat, rent, and utilities are twenty-five percent higher in Chicago than in San Francisco, due to differences in climatic conditions.

The cost of other goods and services are shown to be equal in both cities. The reason for this is explained by the Labor Department as:
Individual preferences play a large part in the way families spend their money, so that even among families of the same economic level, such as the one represented by the budget, some variation occurs in what is considered necessary for clothing, transportation, recreation, tobacco, etc. Therefore, the allowances provided for these items are not suggested as a spending plan for an individual family. Instead, the budget provides for individual choices both within and between major categories; but increased allowances in one category can be compensated for only by sacrificing other items.4

The climate in San Francisco and Oakland, being much milder than in Chicago, does not call for any heavy winter clothing, snow tires, or other cold weather items, falling into the category of other goods and services. When it becomes necessary to buy these items from the transportation or recreation funds, the standard of living will go down, or the cost of living will go up. Theoretically the cost of other goods and services has been considered equal in both cities.

2. Company Benefits

The transferred employee did not forfeit any of his rights to company benefits. The costs and benefits to the employee for

---

Group Life Insurance, Kaiser Retirement Plan, and Kaiser Supplemental Saving and Retirement Fund remained the same. However, the Kaiser Foundation Health Plan available to Oakland employees is far more comprehensive than the Health Plan provided by the New York Life Insurance Company, which is available to the Chicago employees. Both plans are free to the employees. The following two tables illustrate the differences in the plans.
<table>
<thead>
<tr>
<th></th>
<th><strong>HOSPITAL CARE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>One hundred eleven days without charge for each illness or accident---private room provided when prescribed</td>
</tr>
<tr>
<td></td>
<td><strong>DOCTOR'S CARE</strong> (while hospitalized)</td>
</tr>
<tr>
<td></td>
<td>No charge for any service except $15 for Tonsillectomy</td>
</tr>
<tr>
<td></td>
<td><strong>MEDICATIONS</strong> (while hospitalized)</td>
</tr>
<tr>
<td></td>
<td>No charge for three day period</td>
</tr>
<tr>
<td></td>
<td><strong>MATERNITY CARE</strong></td>
</tr>
<tr>
<td></td>
<td>Full care provided at a charge of $60 if confinement is due ten months after membership; $140 if before ten months membership</td>
</tr>
<tr>
<td></td>
<td><strong>X-RAY, LABORATORY WORK, AND PHYSICAL THERAPY</strong></td>
</tr>
<tr>
<td></td>
<td>Employee--All services provided free</td>
</tr>
<tr>
<td></td>
<td>Dependent--$1.00 for each visit at office; no charge at hospital</td>
</tr>
<tr>
<td></td>
<td><strong>DOCTOR'S CARE IN OFFICE</strong></td>
</tr>
<tr>
<td></td>
<td>Employee--No charge</td>
</tr>
<tr>
<td></td>
<td>Dependent--$1.00 for each visit</td>
</tr>
<tr>
<td></td>
<td><strong>DOCTOR'S CARE AT HOME</strong></td>
</tr>
<tr>
<td></td>
<td>$3.50 per visit from 9:00 A.M. to 5:00 P.M.</td>
</tr>
<tr>
<td></td>
<td>$5.00 per visit from 5:00 P.M. to 9:00 A.M.</td>
</tr>
<tr>
<td></td>
<td><strong>NURSE'S HOME VISIT</strong></td>
</tr>
<tr>
<td></td>
<td>Services provided at no charge</td>
</tr>
</tbody>
</table>
**TABLE IV**

**NEW YORK LIFE INSURANCE PLAN**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>HOSPITAL CARE</td>
<td>Seventy days coverage for a ward bed at no cost</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$14 a day allowed for a private or semi-private room</td>
</tr>
<tr>
<td>2</td>
<td>DOCTOR'S CARE (while hospitalized)</td>
<td>Hospital visits $3.00 per day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Schedule of Operation $300 maximum payment</td>
</tr>
<tr>
<td>3</td>
<td>MEDICATIONS (while in hospital)</td>
<td>$500 maximum</td>
</tr>
<tr>
<td>4</td>
<td>MATERNITY CARE</td>
<td>$75 for hospital and doctor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$175 Doctor's allowance for Caesarean or Ectopic birth</td>
</tr>
<tr>
<td>5</td>
<td>X-RAY AND LABORATORY WORK</td>
<td>$25 maximum</td>
</tr>
<tr>
<td>6</td>
<td>DOCTOR'S CARE IN OFFICE</td>
<td>No provisions made</td>
</tr>
<tr>
<td>7</td>
<td>DOCTOR'S CARE AT HOME</td>
<td>No provisions made</td>
</tr>
<tr>
<td>8</td>
<td>NURSE'S HOME VISIT</td>
<td>No provisions made</td>
</tr>
</tbody>
</table>
A comparison of the two tables shows that the employee loses considerable coverage under the New York Life Insurance Company Plan.

Both plans are supplemented by a Major Medical Plan, which pays 80 percent of all other eligible medical expenses not covered by the basic plan up to $10,000 for each disability. However, the cost to the Chicago employee is almost twice the amount charged to the Oakland employee.

In the event of a serious illness, this decreased coverage would mean considerable financial loss.

3. Adjusting to Change

In addition to the higher cost of living in Chicago, the transferred employee and his family were faced with the problem of leaving friends and relatives. The children were also forced to adjust to new schools.

In a study made by Dr. Howard G. Spalding, Ph.D., principal of A.B. Davis High School, Mt. Vernon, New York, the problems of children changing schools in the middle of the year revealed that:

...one pupil in twelve had serious difficulty in making the adjustments required. Of the remaining, one third found the change somewhat difficult, another third considered the change only a minor problem, and a final third considered it no problem and were glad they had made the change. Half of the
pupils completed their adjustment in two weeks or less and three-fourths did so within a month. Less than ten percent felt that they had not solved all of their problems of adjustment.\(^5\)

The graph on the following page shows that these factors, plus geographic conditions, have been found to be the key elements in considering a change of location for the family. This graph was developed by Greyvan Lines from 200 personal interviews and 1000 direct mail questionnaires with transferred employees in an eight city area. The percentages shown are a breakdown of the major obstacles to moving by those individuals surveyed.

Concern about children's adjustment to new school: 31.7%

Geographic qualms, climate, size of city, etc.: 18.4%

Fear of loneliness, lack of friends: 18.3%

Finding new home: 13.6%

Financial: 9.3%

All Others: 9.1%

FIGURE 2

MAJOR OBSTACLES TO MOVING

Personal interviews were conducted and a questionnaire (see Appendix I) was sent to twelve of the thirteen Kaiser personnel, a year after their arrival to Chicago. It was found that their feelings toward moving were somewhat different from those of the Greyvan Study. They differed both in the order that the various factors affected them and the degree to which they were affected.

The graph on the following page, which was compiled from the returns of eleven of the twelve questionnaires sent, shows the results of this study.

The writer developed the graph by rating the responses to the questionnaire that indicated serious difficulty in adjusting to the new situations as 3; those indicating minor difficulty as 2; those indicating no difficulty as 1; and those indicating not applicable as 0. The eleven responses to each question were totaled, then divided by eleven. The sum of all eleven questions equaled 100 percent. Each question was divided by the total of all eleven questions, to arrive at the percentage given on the graph.
FIGURE 3

MAJOR OBSTACLES TO MOVING

KAISER ENGINEERS
The results of the questionnaire, as shown on the graph, indicate that the transferred Kaiser personnel felt that leaving their friends and relatives created the greatest problems in moving. Only one reply indicated that there was no difficulty in leaving friends and relatives. The other ten expressed either some difficulty or serious difficulty in this area of adjustment. Two comments which typify the feelings of those who received the questionnaire were: "Always difficult to leave friends that you have known for ten to fifteen years,"; "My wife and I are both the youngest of eleven brothers and sisters; our parents are still living and we are a closely knit family."

The second most important obstacle in adjusting to the transfer was making new friends in the Chicago area. Four of the eleven participants were previously mid-westerners, but all were strangers to Chicago. Since they all had to purchase homes that would best accommodate their families' needs, none were able to move in the same neighborhood. Some comments from the questionnaire were: "People are more reserved in Chicago than in California."; "People are too ingrown and suspicious. They still do not believe that they are their brothers' keeper."; "Most of our friends in California were country club golfers. Our present area of residence is not of that type. We have hardly any more
The third most important obstacle was the change in geographic location and the difference in climate. This same factor was the second most important in the Greyvan Lines Study. The reason for this was that along with the geographic and climate change, there was the concern about the size of the city in which the employee was to relocate. With the Kaiser personnel, size of city was not too important, since both cities are large and offer about the same facilities. The respondents' main concern was the difference in climate. One said: "Because of severe winter cold and summer humidity, it was necessary to buy many extra clothes." Another stated: "Although used to live in the mid-west, a period of living in California conditions makes any change one for the worse and poses a problem. Frankly, we hate the Chicago area."

The fourth obstacle in adjusting to the new environment was that of buying or renting a home in Chicago. All eleven responses indicated that homes were bought rather than rented. The possibility of renting was eliminated because rents were too high for their living needs. Only one who bought a home indicated that he was able to purchase it immediately with no
difficulty. Eight said that they encountered financial problems, because homes in the Chicago area, comparable to the ones that they owned previously, are considerably higher. Two of the men who answered the questionnaire said: "Homes sell and rent at a considerably higher figure in the Chicago area than they do in California, my previous home."; "We were most fortunate in the timing between sale of house in former home and purchase of home in Chicago. However, prices of homes in Chicago were notably higher than in former home city."

The fifth obstacle was that of the children's ability to make new friends and adjust to new school systems. One answered that there were no children in the family. Three stated that their children were under six years of age and not in school, nor had they made any real friends as yet. Of the seven who had children in school, only one had serious difficulty in adjusting to the new school curriculum. This was a high school student, whose parents replied that: "Generally speaking, scholastic requirements are more stringent in this area than in Southern California." However, the most common response was that there was only minor or no difficulty in adjusting to the new school and making new friends. "The children quickly made new friends."
They picked up the school work quickly." "We have done a fair amount of traveling. The children have learned to adjust to new conditions and never have had difficulty in making new friends. Because of a difference in school teaching programs, there was a short period of adjustment while they learned what was expected in the way of homework etc."

This is the only area in which the responses of the transferred Kaiser personnel greatly differed from that of the Greyvan Lines Study. The reason for this was that there were eleven responses of which only three had children of high school age. The Greyvan Lines Study covered 1,200 responses which involved many more high school students. Children in this age bracket caused greater concern for the parents in relation to new school curriculum and social environment.

The sixth obstacle in adjusting to the move was that of transporting household goods. Ten of the eleven responses indicate that there was only a minor inconvenience in having their household disrupted. Only one complained of serious difficulty because of damaged furniture. "Damage to household goods was caused by careless packing and handling." None of the transferees encountered a financial loss because Kaiser covered all the expenses involved in moving.
The seventh obstacle represented in the graph was the financial loss in selling the homes. Eight had no problem at all in regard to the sale of their homes, because Kaiser Engineers handled this for them. Three complained of loss of investment on the improvement made to their homes, which did not add to the market value.

The final point in the questionnaire asked if they were happy that they had accepted the transfer. Eight responses indicated that they had made a wise choice and were happy they had moved. Typical comments were: "I am glad I made the change, as it meant advancement in position and salary for me." "The job opportunity and challenge balance the objections to living in this area." Another said: "Job was all that had been promised and fellow workers are most compatible." The other three responses did not indicate that they were sorry they had made the move, but did have some reservations. "Economic upset changed anticipated advantages." and, "For the job situation, yes, for the entire family, no." The third respondent made no comment.

The table on the following page shows a comparison of the Kaiser Study with The Greywan Study.
TABLE V

COMPARISON OF KAISER STUDY WITH
GREYVAN LINES STUDY

<table>
<thead>
<tr>
<th>Kaiser Engineers Study</th>
<th>Greyvan Lines Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Leaving friends and relatives</td>
<td>1. Concern about childrens' adjustment to school</td>
</tr>
<tr>
<td>2. Making new friends</td>
<td>2. Geographic location and climate</td>
</tr>
<tr>
<td>3. Geographic location and climate</td>
<td>3. Lack of friends</td>
</tr>
<tr>
<td>4. Buying a home</td>
<td>4. Buying a home</td>
</tr>
<tr>
<td>5. Childrens' adjustment to school</td>
<td>5. Financial loss</td>
</tr>
<tr>
<td>6. Moving household goods</td>
<td>6. All others</td>
</tr>
<tr>
<td>7. Selling home</td>
<td></td>
</tr>
</tbody>
</table>
A comparison of the two studies, on the previous page, shows that there were some differences in the findings. The Greyvan Lines Study gives a good prediction of what could be the most serious obstacles in moving. However, the Kaiser personnel encountered special problems, which made their ratings differ from the Greyvan Study.

Leaving friends and relatives, and having to make new friends, were much more serious problems to the Kaiser personnel than was their concern about the children adjusting to the new schools. The reason for this was that the distance between Oakland and Chicago was about 2,500 miles. The possibility of visiting old friends and relatives frequently would be remote. In the Greyvan Study the distance was not always so great, thus more frequent visits could be arranged. Also the Greyvan Study included many families with older children having social, athletic and scholastic ties. This was not prevalent among the Kaiser families.

The two studies differed somewhat in respect to location and climate change. Climate change was a big factor to the Kaiser personnel, while in many instances in the Greyvan Study, the location change did not mean a change in climate. However,
the size of the city did play an important part in the Greyvan Study, whereas it was relatively unimportant to the Kaiser personnel.

Both studies agreed on the problems involved in the purchase of a new home.

The first four factors in each study contributed the most serious obstacles in accepting the transfer. Although these studies differed in the ratings given each problem, the same basic problems were found common to both studies.
CHAPTER III

THE PROBLEM OF HIRING QUALIFIED ENGINEERS

A. Shortage of Engineers

The fact that graduate engineers are at a premium today and will be for some time to come, has been pointed out by numerous studies on this subject, and verified by many men in the engineering field.

Robert J. Wolf, Vice President of Kaiser Engineers points out that "Good engineers have always been scarce. With our ever increasing progress in the engineering field, however, there will be an even greater shortage in the years to come, unless more young men are attracted to the engineering field." 6

"We must acknowledge the definite drift from engineering studies to science," said John T. Rettaliata, president of Illinois Institute of Technology.

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6 Information from a personal interview of the author with Robert J. Wolf.
"Unless there is an early change in the engineering manpower trend, our tradition of national accomplishment will be in jeopardy."

He said that it had been expected that U.S. schools would be graduating 43,000 engineers a year after 1958. The figure now used is 37,000. 7

A recent study vividly shows the present shortage and indicates that the shortage will grow even greater by the middle 1960's. Table VI, a summary of this study, shows that in each five year period from 1950 to 1965, the ratio of engineering jobs to the number of engineers is more than doubled.

### TABLE VI

**ESTIMATES OF GRADUATE ENGINEERS AND ENGINEERING JOBS**

(In Thousands)

<table>
<thead>
<tr>
<th>Five Year Period</th>
<th>1950-55</th>
<th>1955-60</th>
<th>1960-65</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Engineering Jobs-Start of Period</td>
<td>534*</td>
<td>700</td>
<td>950</td>
</tr>
<tr>
<td>2. B.S. Engineers-Start of Period</td>
<td>285*</td>
<td>417</td>
<td>526</td>
</tr>
<tr>
<td>3. Ratio B.S. Eng'rs to eng'g Jobs (2:1)</td>
<td>53%</td>
<td>60%</td>
<td>55%</td>
</tr>
<tr>
<td>4. New B.S. Engineers during Period</td>
<td>171</td>
<td>157</td>
<td>222</td>
</tr>
<tr>
<td>5. Entering Engineering (93% of item 4)</td>
<td>159</td>
<td>146</td>
<td>207</td>
</tr>
<tr>
<td>6. Total B.S. Eng'rs for Period (2-5)</td>
<td>444</td>
<td>563</td>
<td>733</td>
</tr>
<tr>
<td>7. Deaths and Retirements (1 1/2% per year)</td>
<td>27</td>
<td>37</td>
<td>47</td>
</tr>
<tr>
<td>8. Net B.S. Eng'rs-End of Period (6-7)</td>
<td>417</td>
<td>526</td>
<td>686</td>
</tr>
<tr>
<td>9. Engineering Jobs-End of Period</td>
<td>700</td>
<td>950</td>
<td>1250</td>
</tr>
<tr>
<td>10. Ratio B.S. Engr's to Eng'g Jobs (8:9)</td>
<td>60%</td>
<td>55%</td>
<td>55%</td>
</tr>
</tbody>
</table>

* U.S. Bureau of the Census

B. Recruiting Program

In addition to the shortage of engineers in general, Kaiser Engineers' problem of recruiting was magnified by four factors.

1. The Company was looking for engineers with at least five and preferably ten years experience, which limited the field.

2. Kaiser is an engineering firm which does a complete design job for its client, therefore it needed all types of engineers. This meant that each applicant had to be interviewed by an engineer who was a specialist in all of the following departments: Structural, Architectural, Mechanical, Civil, Electrical, Piping, Instrumentation, and Specifications. A general engineer or a personnel man would not be able to determine initially an applicant's qualifications.

3. The fact that Kaiser Engineers is the exclusive licensor of the L-D process in the United States meant that very few engineers would be familiar with it. Therefore, it was necessary to look for engineers whose experience could be easily adapted to the L-D process.

4. All key personnel were transferred from the Oakland
office and were not familiar with the better Chicago sources available for recruiting experienced engineers.

C. Recognition Factor

Frances X. Paone, in the research on which he based his doctoral dissertation, found that personal recognition is a factor that is often lacking in the work of an engineer, and becomes a major cause of dissatisfaction with his job. He also discovered, in a survey at Western Electric, that engineers' allegiance increased when they were moved from the Hawthorne Plant in Cicero, Illinois to a modern office in the Loop section of Chicago, the majority going to the Merchandise Mart. These modern facilities, with air conditioning, smoking privileges, and partitioned work space, helped to give the engineer the recognition that was lacking at the Hawthorne Plant.8

Kaiser Engineers realized that recognition is a vital factor in the life of an engineer, who spends the greater part of his time working at a board on only a small segment of a vast project. To combat this lack of recognition, that could cause

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8 Frances X. Paone, Allegiance Patterns of Unionized Professionals Unpublished Doctorial Dissertation, Loyola University June, 1960
much discontent and low output of work, the management of Kaiser Engineers, leased approximately half of the eleventh floor of the Builders Building on North LaSalle Street. The office space consisted of about 10,000 square feet. It was completely air conditioned and decorated in modern style and color. Each project engineer was given his own private office with adequate secretarial help. All the engineers in the Design Department were given new and modern equipment, and were allowed to smoke at their drawing tables. This required the expenditure of large sums of money.

The management of Kaiser Engineers realized that they must provide modern facilities and pay higher salaries than the new employees had previously earned, in order to attract the best qualified engineers.

D. **Kaiser Salaries**

The table on the following page illustrates the amount of increase found necessary to secure the type and number of men needed.
### TABLE VI

EMPLOYMENT SALARY RECORD

CHICAGO OFFICE

<table>
<thead>
<tr>
<th>Title</th>
<th>Number</th>
<th>Previous Average</th>
<th>Kaiser Salary</th>
<th>Kaiser Weekly Average</th>
<th>Kaiser Weekly Range</th>
<th>Percent Increase Oct. 1960</th>
</tr>
</thead>
<tbody>
<tr>
<td>Associate engineer</td>
<td>1</td>
<td>$212.00</td>
<td>$230.00</td>
<td>$205-274</td>
<td>9.2%</td>
<td></td>
</tr>
<tr>
<td>Senior engineer</td>
<td>25</td>
<td>163.16</td>
<td>184.50</td>
<td>170-226</td>
<td>8.8%</td>
<td></td>
</tr>
<tr>
<td>Assistant engineer</td>
<td>12</td>
<td>144.17</td>
<td>157.08</td>
<td>141-187</td>
<td>9.1%</td>
<td></td>
</tr>
<tr>
<td>Design draftsman</td>
<td>11</td>
<td>155.63</td>
<td>163.63</td>
<td>133-177</td>
<td>9.5%</td>
<td></td>
</tr>
<tr>
<td>Senior draftsman</td>
<td>9</td>
<td>122.78</td>
<td>137.56</td>
<td>110-149</td>
<td>8.9%</td>
<td></td>
</tr>
<tr>
<td><strong>Total average</strong></td>
<td></td>
<td><strong>159.55</strong></td>
<td><strong>174.55</strong></td>
<td><strong>--</strong></td>
<td><strong>9.1%</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: Kaiser Engineers' Files
The table shows that Kaiser increased the salaries of Associate engineers an average of 9.2 percent; Senior engineers 8.8 percent; Assistant engineers 9.1 percent; Design draftsman 9.5 percent; and Senior draftsman 8.9 percent. The average increase for all engineers hired in Chicago was 9.1 percent. This is a conservative figure since the writer had to accept the salary given on the application for employment as an accurate figure. The previous salary could not be definitely verified, as many companies refuse to disclose the salaries of former employees.

The average salaries of the employees were computed by comparing all of the previous salaries with the salaries that Kaiser paid as of October, 1960. The October figures were used rather than the initial hiring salaries, because many of these engineers had reached the top of the pay scale in their previous place of employment, and were not able to advance any further. They accepted Kaiser's offer provided they were able to increase their salary. Periodic increases were promised provided the semi-annual performance reviews were satisfactory.

In addition to the salary increase, another factor that attracted these men was that the office was new, which would
give them a better opportunity to advance themselves as the office grew. In the period of a year, three men were advanced from Senior draftsmen to Assistant engineers; three Assistant engineers were advanced to Senior engineers.

Success in recruiting the number of engineers needed can be attributed to the fact that initial higher salaries were offered, with the possibility of advancing both in job classification and salary.
CHAPTER IV

ADMINISTRATIVE PROBLEMS

A. Source of Material

Most of the material in this Chapter was obtained from the personal experiences of the writer, who was an employee of the Chicago office of Kaiser Engineers. Other information was taken from the files, which were made available to the writer.9

B. Communication with Home Office

The new branch office in Chicago, which was over 2,500 miles from the home office, created communication problems; not only in coordinating various phases of the engineering projects, but also in the administrative departments of payroll, purchasing, accounting, personnel records, group insurance, and retirement.

When the office was newly opened, it was not large enough to warrant a paymaster. The budget set up for the office by Oakland did not include a paymaster until the payroll reached

9See page 5, Section C
one hundred and twenty five employees. Up to that time, all the
time cards would be sent to the Oakland office for processing on
the fifteenth and thirtieth of each month. This created many
obstacles in running an efficient office. The time cards could
not be sent to Oakland prior to the middle and end of the month,
since each engineer's time was assigned to a specific project
and would be paid by a specific client for his work. If the
engineer was sick or assigned to another project, his time would
have to be reassigned to sick leave or to the new project. The
main problem arising from this procedure was that even with rapid
air mail and special delivery service, it would take about one
and a half days for the time cards to reach the Oakland payroll
department. It would take the payroll department a day to
process the time cards, and another day and a half to return the
pay checks to the Chicago office for distribution. This delay
tended to upset the personal budgets of the Chicago employees.
On one occasion the payroll checks were lost in transit from
Oakland. This mishap necessitated the rewriting of the checks,
which involved a further delay.

The purchase of engineering and office equipment was also
affected by the distance between the two offices. Before any
purchase over fifty dollars could be made it was necessary for three bids to be secured and sent to the Oakland purchasing department for their review. When Oakland was purchasing the same item or items, the purchase would be made in Oakland, with delivery to Chicago. On one occasion an adding machine was three weeks late in arriving, because of the remoteness and lack of personal communication between the Oakland purchasing department, the vendor, and the Chicago Office, which was to receive the machine.

The accounting department also felt the same effects of this communication problem. It was to receive all the invoices and statements sent to the Chicago office by various local sources. On receipt of the statements, the Chicago office was to verify them with a purchase order, and send them to the accounts payable department in Oakland. During the first months of operation, it was found that many statements were not paid at all or were very late in being paid. It was discovered that through errors made by the administrative department, which was made up entirely of employees who were hired in Chicago and were not familiar with Kaiser Engineers' procedures, all the statements were not sent to Oakland.
All functions of personnel, which included personnel records, group insurance, and retirement benefits, had to be duplicated so that both Oakland and the Chicago office would have all pertinent information about each Chicago employee. Keeping Oakland records on Chicago employees current and accurate was extremely important. If changes were made in the Chicago files, and not recorded in Oakland, these changes would not be effective. The reason for this is that the files in Oakland are used by the Insurance Company to determine who is covered under the group plan. There was one incident in which Oakland did not receive an authorization for deduction for life insurance on a Chicago employee. This employee assumed that he was insured, but did not realize that he was not until several months had elapsed, and no deductions were taken from his paycheck. Needless to say, serious consequences could have resulted from such errors in communications.

Many of these problems in communication were alleviated by the installation of a teletype machine in the Chicago office. This gave direct communication facilities with the Oakland office. Also the use of a telephone tie-line made rates reasonable, so that long distance phone calls could be made more freely.
Although the use of both the teletype and the telephone tie-line helped to improve communication, there still remained the lack of personal or face-to-face contacts, which tend to promote the most efficient operation.

C. Clerical Problems

The usual clerical problems encountered by an engineering firm were magnified by the fact that all administrative personnel, including the clerical staff, were new to Kaiser Engineers and were not familiar with its systems and procedures. Also no one on the staff had had previous experience in working for an engineering firm. Thus, they were completely unfamiliar with the technical engineering terms. Both of these situations created obstacles in setting the office into operation.

Since there was no formal orientation program, it was necessary for each engineer to acquaint his secretary or typist with the methods, procedures, and terms used by Kaiser Engineers. There was a disadvantage in this because some secretaries hesitated to ask too many questions of one man. In a more established office, the secretary or typist could have her questions answered by another member of the clerical staff.
It was necessary that each clerical employee be willing to be reassigned or transferred to any department which might be overloaded with clerical work. This eliminated many clerical applicants. Either the applicants were not capable of performing the various assignments or they were not willing to accept the change from one department to another.

Before hiring the entire clerical staff, it was necessary to determine the normal or consistent work load of the office. This could only be done by evaluating the day to day operations in the office over several months. There was no past experience to rely on, since the office was new. Oakland could not provide any adequate data, for there was always enough clerical help to meet any emergency.

In order to keep the clerical work up to date, temporary office workers were employed. This proved to be very successful for the immediate situation to avoid over-staffing. It also built a reservoir of clerical help, who were familiar with Kaiser procedure, and could be used when some emergency or overload of work existed. These temporary office workers served the Chicago office as did the large staff of full time employees in Oakland, to meet emergency.
D. Securing Sufficient Office Space

After nine months of operation, the office had grown from two to over eighty-five employees. With all available office space on the eleventh floor of the Builders Building occupied, it was necessary to lease additional office space on the seventeenth and twenty first floors of the same building. This made it more difficult to coordinate the numerous engineering functions. After several months, Kaiser Engineers was able to obtain more space on the eleventh floor. With the removal of a few walls, all the engineering departments became centralized.
CHAPTER V

SUMMARY AND CONCLUSION

A. Summary

Kaiser Engineers has grown from a service organization to a national Company in less than twenty years. With the establishment of the Chicago office, this growth pattern was significantly increased.

The securing of the exclusive rights to the use of the Linz-Donowitz process is considered to be a vital factor to ensure the future success of the newly opened office.

Another element essential to the success of the office was the transfer of capable managers and experienced engineers from Oakland. This transfer meant that these men would have to face many personal difficulties such as the higher cost of living, the adjustment to a new social environment, leaving friends and relatives, and the concern for their children's adjustment to new schools. The employees would also have to accept much less in the
way of Company benefits.

Finding qualified engineers has always been a problem, for there are fewer graduating engineers than there are engineering job openings. Kaiser's recruiting problem was magnified by the fact that the firm sought engineers with approximately ten years of experience which could be adapted to the use of the Linz-Donowitz process. Kaiser obtained these men by paying them salaries higher than they had previously earned.

Many communication problems arose as a result of the distance between the Chicago office and the home office. These problems affected the engineering as well as the administrative departments. The installation of a teletype and telephone tie-line greatly reduced communication difficulties.

Setting up a clerical staff was a slow process, since the office work load was unstable at the beginning. Temporary Work Services supplemented the clerical staff at this time. This service eliminated the problem of over-staffing, and also built a reserve of clerical employees for emergency needs.

Securing sufficient office space and furnishing it adequately required the expenditure of large sums of money. However, the cost was easily justified, for all money spent tended to make the
office run more efficiently.

B. Conclusion

The author feels that the exclusive rights to the Linz-Donowitz process which Kaiser Engineers owns will be a key factor to the future success of the office. When steel companies build new plants or replace the equipment in old ones, they will want to install equipment that can produce the same quantity of steel at half the installation cost of the open hearth. This equipment is also cheaper to operate. No other engineering firms can use this process without permission from Kaiser Engineers. Therefore, all steel companies planning to install this process will have to use the services of Kaiser Engineers.

The engineering personnel transferred from Oakland were confident that the office would be successful. For this reason they accepted the transfer to Chicago, in spite of the many obstacles they had to encounter. They were faced with a higher cost of living as was shown in the Bureau of Labor Statistics figures. These figures in day to day living actually are higher since the Bureau rated the cost of other goods and services as equal in both cities. But the climate difference would necessitate a larger variety of clothing in Chicago, thus making this
cost difference even greater.

Even if the climate change did not add a financial burden, the moderate climate of California would be hard to leave to accept the harsh winters and humid summers of Chicago.

In many cases the employees would either refuse the transfer or if necessary resign from the Company if it meant leaving friends and relatives. From the questionnaire, it is evident that this was a great obstacle in accepting the transfer.

The fact that engineers are at a premium is a good indication that none would accept a job which would not mean financial and promotional gain immediately or in the near future.

By the end of the first year of operation most of the problems which were encountered by Kaiser Engineers and their families were resolved satisfactorily.

C. Areas for Further Study

This thesis uncovered many problems in opening the new office. Further study could be done in the area of the problems met in the growth of this office in the years to come.
BIBLIOGRAPHY

I. PRIMARY SOURCES

Kaiser Engineers' Files.

II. SECONDARY SOURCES


Kaiser Engineers, This is Kaiser Engineers, Oakland, Calif., 1957.


APPENDIX I

QUESTIONNAIRE

INSTRUCTIONS: Circle the letter which indicates your reaction to each question.

A. Serious difficulty  B. Some difficulty

C. No difficulty  D. Not applicable

Indicate the specific problems you encountered if any, in the space below each question. What adjustments were necessary?

1a. Did you encounter any difficulty of a financial nature in selling your home?
   (Circle one) A. B. C. D.

b. Why did you give this response?

2a. Did you encounter any difficulty of a financial nature in buying or renting a home in Chicago?
   (Circle one) A. B. C. D.

b. Why did you give this response?
3a. Did you encounter any problems in moving your household goods?
   (Circle one)  A.  B.  C.  D.

b. Why did you give this response?

4a. Did leaving friends and relatives create a problem?
   (Circle one)  A.  B.  C.  D.

b. Why did you give this response?

5a. Did you and your wife have difficulty in making friends in Chicago?
   (Circle one)  A.  B.  C.  D.

b. Why did you give this response?

6a. Did the children find difficulty in making new friends?
   (Circle one)  A.  B.  C.  D.

b. Why did you give this response?
7a. Did the children find difficulty in adjusting to their new school?  
(Circle one) A. B. C. D.

b. Why did you give this response?

8a. Did you find it difficult to adjust to a new climate?  
(Circle one) A. B. C. D.

b. Why did you give this response?

9. All things considered, are you happy that you accepted this transfer?