

SOCIO-ENGINEERING PROBLEMS

CONTENTS

| | |
|---|-----|
| Socio-Engineering Problems (Statement) | 11 |
| Engineers' Council for Professional Development (Definition of Engineer) | 11 |
| Statement of Problems 1.1 (Perspective), Problem 1.2 (Social Responsibility), Problem 1.3 (Mankind's Highest Aspirations). | 11 |
| Statement of Problem 2.1: What distribution of structures in a large city meets the human needs of the people best? | 111 |
| Letter of Transmittal | 1v |
| Acknowledgement | 1v |
| SAN JOSE 2008 A.D. (Sociology-Fiction) "The City That Has a Heart" A pioneer city in the peaceful use of atomic energy; random access accounting; social planetariums; and brotherly love. | 1 |
| Changing Street Names | 2 |
| View of Central San Jose 2008 A.D. | 3 |
| Continuation of the Gradual Fulfilment of the Central District Master Plan | 4 |
| Central District Master Plan 1975 A.D. | 5 |
| Principles of the Central District Master Plan | 6 |

SEPTEMBER
1958

No. 2

All Rights Reserved by
Frederick B. Wood, P.E.
2346 Lansford Avenue
San Jose 25, California, U.S.A.

Revised
Nov. 12, 1958

SOCIO-ENGINEERING PROBLEMS

A series of working paper drafts on the subject of the social relations of engineering. This series of reports on ideas developed in the pursuit of my hobby of considering the potential analogies of various engineering concepts in the social sciences as a way of establishing a technique for engineers to discharge their responsibility for the social use of their ideas and inventions. The function of this newsletter is to provide a limited distribution of some preliminary ideas for discussion prior to editing for submission to established journals and engineering societies. In some cases no formal publication is planned, since this medium of communication will be used to suggest ideas to universities and research institutes who are better prepared to develop the ideas.

Frederick B Wood

Engineers' Council for Professional Development:

"The engineer may be regarded, therefore, as an interpreter of science in terms of human needs and a manager of men, money, and materials in satisfying these needs."

This series deals with the function of the engineer as an "interpreter" on the assumption that other people are dealing with the management functions which many engineers acquire.

Problem 1.1: How can engineers develop some kind of perspective to give them a synthesis of the specialized fields of science needed for them to fulfil their function as an interpreter of science in terms of human needs? The notion of "human needs" raises many sociological questions.

Problem 1.2: What is the nature of the social responsibility of engineers?

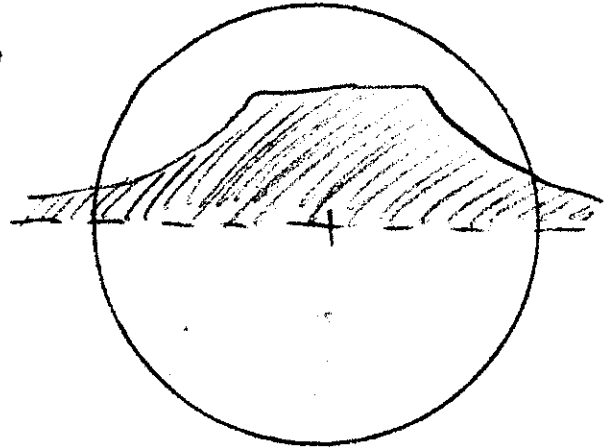
Problem 1.3: How can engineers help make the results of their work be utilized in tune with mankind's highest aspirations as stated by the major religious faiths?

My preliminary hypotheses regarding problems 1.1-1.3 are stated in Socio-Engineering Problems, No. 1, August 1958. Perhaps I shall discuss more details in issue no. 2.

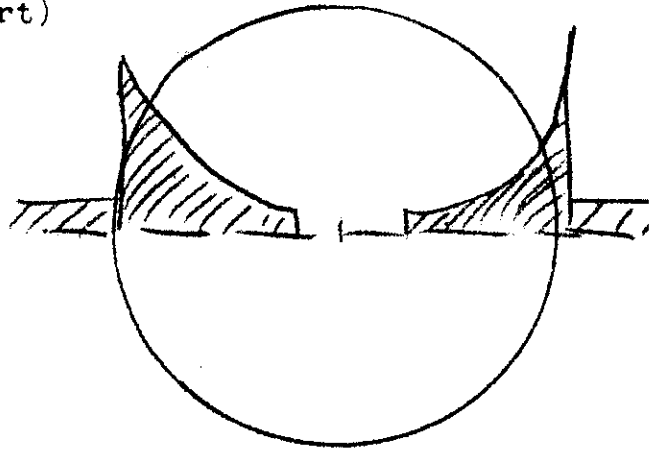
The discussions at the convention of the National Society of Professional Engineers in San Francisco, October 24, 1958, were of considerable significance in clarifying the dual role of the engineer as (1) an individual in respect to professional matters such as ethics, social responsibility, etc., and (2) as a part of a collective group in respect to technical matters when employed by a corporation or government agency.

Problem 2.1: What distribution of structures in large city best meets the human needs of the people?

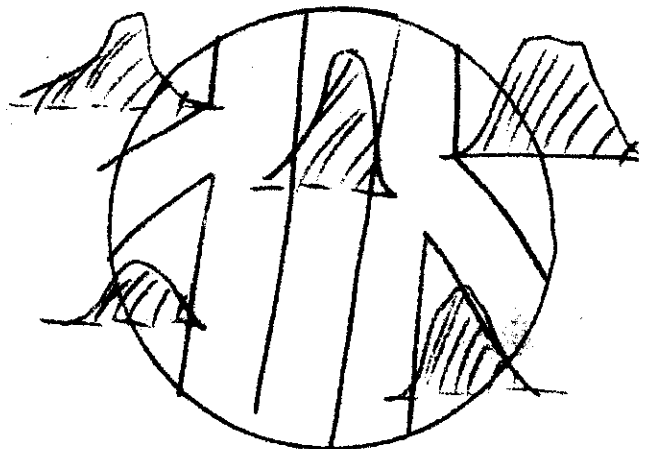
(a) Does a mesa type concentration of skyscrapers in the center best serve the needs of the people?



(b) Does a central cultural area (heart) surrounded by logarithmically rising building heights provide better communication between the people working and living in a large city?



(c) Does a special distribution of buildings around parks using natural stream beds, canyons, hills, etc., better meet human needs?



2346 Lanesford Ave.
San Jose 25, California
June 23, 1958

Mr. Michael H. Antonacci, Planning Director
City of San Jose
City Hall
San Jose, California

Dear Mr. Antonacci:

A few weeks ago I visited the new City Hall and was impressed by the modern facilities we now have for government. While visiting the new City Hall, I saw the recently issued Master Plan for San Jose. The plan is an excellent start. However the plan is in detail in some aspects, particularly in the domestic aspects. I presume your next step is to work out the more detailed plan. It may be an opportune time to convey to you some ideas I have secured to be during the past year.

Since I have not had any engineering or economic background in connection with these ideas, I have prepared them in the form of "Sociology-Fiction." I am considering publishing this material, but would first like to know if any particular time or method of publication would be more helpful in promoting public interest in the more immediate planning needs of our city and county. I am sending copies of these notes to a few other city officials, county officials, civic leaders, friends, and neighbors.

Very truly yours,

Frederick B. Wood

Frederick B. Wood

Acknowledgment

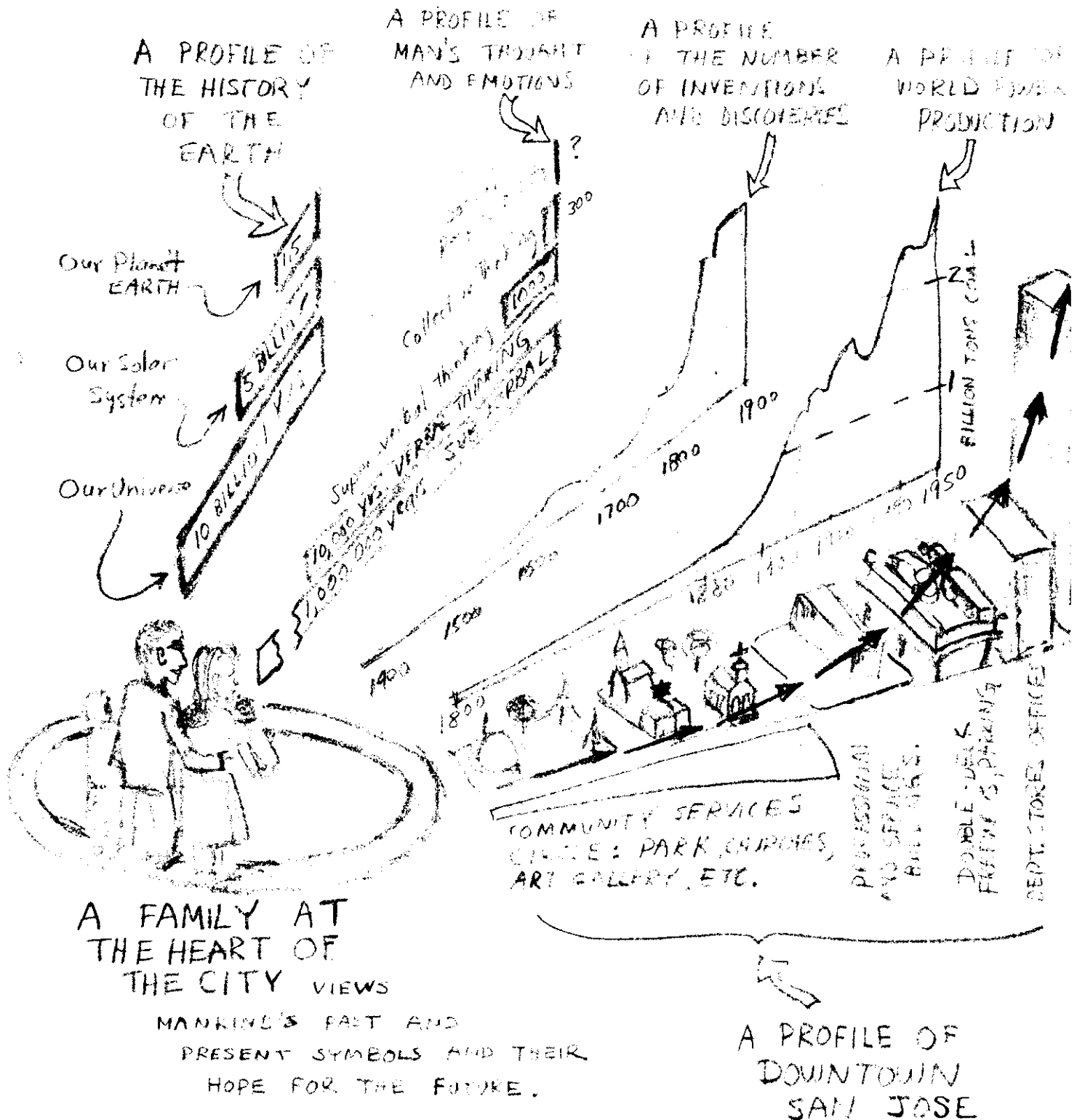
I wish to thank Dr. H. L. Meier and Dr. A. W. Einarsson for their valuable comments on the sociology-fiction of the next few pages. They suggested the restatement of the problem along the lines indicated on page iii. Dr. Einarsson brought it to my attention that the "profile of the history of the earth" on page 1 needs revision to agree with the latest estimates of the age of the universe.

F. B. W.
11-12-58

SAN JOSE 2008 A.D.

"The City That Has A HEART"

A Pioneer City in Peaceful Use of Atomic Energy; Random Access Accounting; Social Planetariums; and Brotherly Love.



SAN JOSE - - 2008 A.D.

Consider ourselves transformed in time from the present year 1958 to the year 2008 A.D. Suppose we were to visit a meeting of the City Planning Commission¹. What would they be considering?

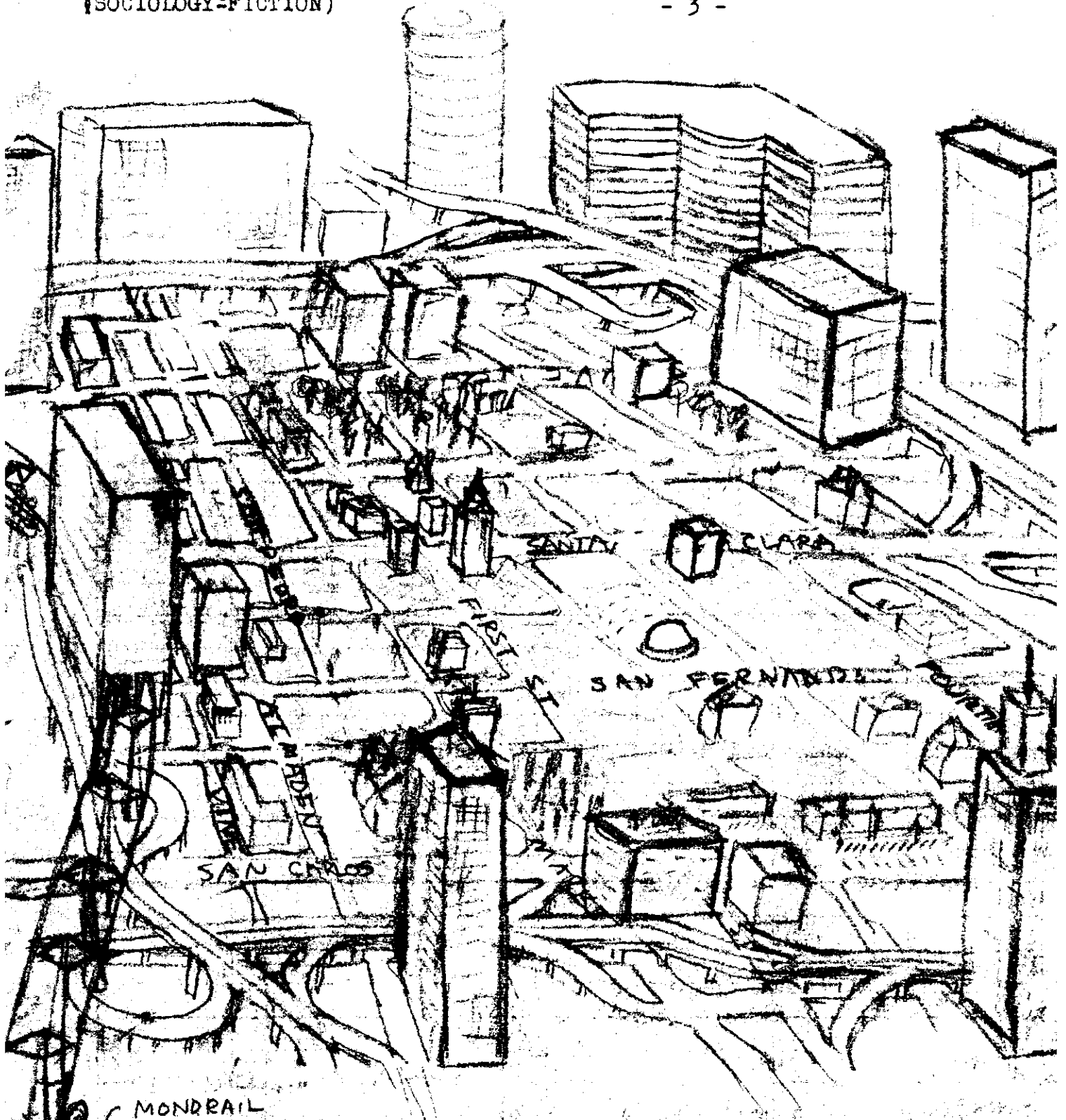
Changing Street Names.

Chairman Jones said "From the next item on the agenda, it looks like some more people in our city have been reading books." He then asked the clerk to read the petition from the residents of Ardis Drive to change the name of their street to Lincoln Court. The petition stated that the similarity of their street name to the city of Ardis popularized by the 100th anniversary reprint of Jack London's The Iron Heel is causing them embarrassment and ridicule. Commissioner Anderson commented that this was an interesting turn of events. The book of Jack London's was a clear warning to utopian socialists of a century ago that they had failed to account for problems of understanding human nature in their concentration upon minute details of grandiose schemes for a better world. It was moved by Smith and seconded by Brown that the street name be changed. Motion carried.

Next Commissioner Brown moved that the Plaza of 1797 be renamed Margaret Mead Square. He explained that he thought she was an anthropologist who gave a lecture at the Community Forum sometime in the 1950's that started a chain of events which led to someone in San Jose getting a copy of her paper on "Towards More Vivid Utopias"².

1. Note: San Jose had become one of leading cultural centers in the United States. The Science Education Department and Philosophy Department together with the Engineering Division of San Jose State College had cooperated on a unique and fruitful project: The synthesis of the special fields of science, engineering, and some of the liberal arts in a way which the layman could more easily understand the significance of the latest work in science. Through this project San Jose became of world renown for its contribution to the strengthening of democracy through helping the layman to understand science sufficiently well to vote more intelligently on issues involving the distribution of scientific research funds and policies involving the application of the results of science.

2. Science, Nov 8, 1957, vol. 126, No. 3280, pages 957-961.



VIEW OF CENTRAL SAN JOSE

TO IBM &
GILROY

2008 A.D.

He said the city historian thinks that this led to a chain of events which led to great public interest in city and county planning. This public interest led to the adoption of the central district master plan of 1975. Commissioner Brown stated that since the city and county planning commissions had both developed more vivid utopias no bond issues have failed to pass.

Commissioner Anderson suggested that the plaza be renamed Samoa Island, because the lush vegetation of the plaza reminds him of growing up in Samoa. Chairman Jones ruled further discussion of the plaza as out of order.

Continuation of the Gradual Fulfilment of the Central District Master Plan

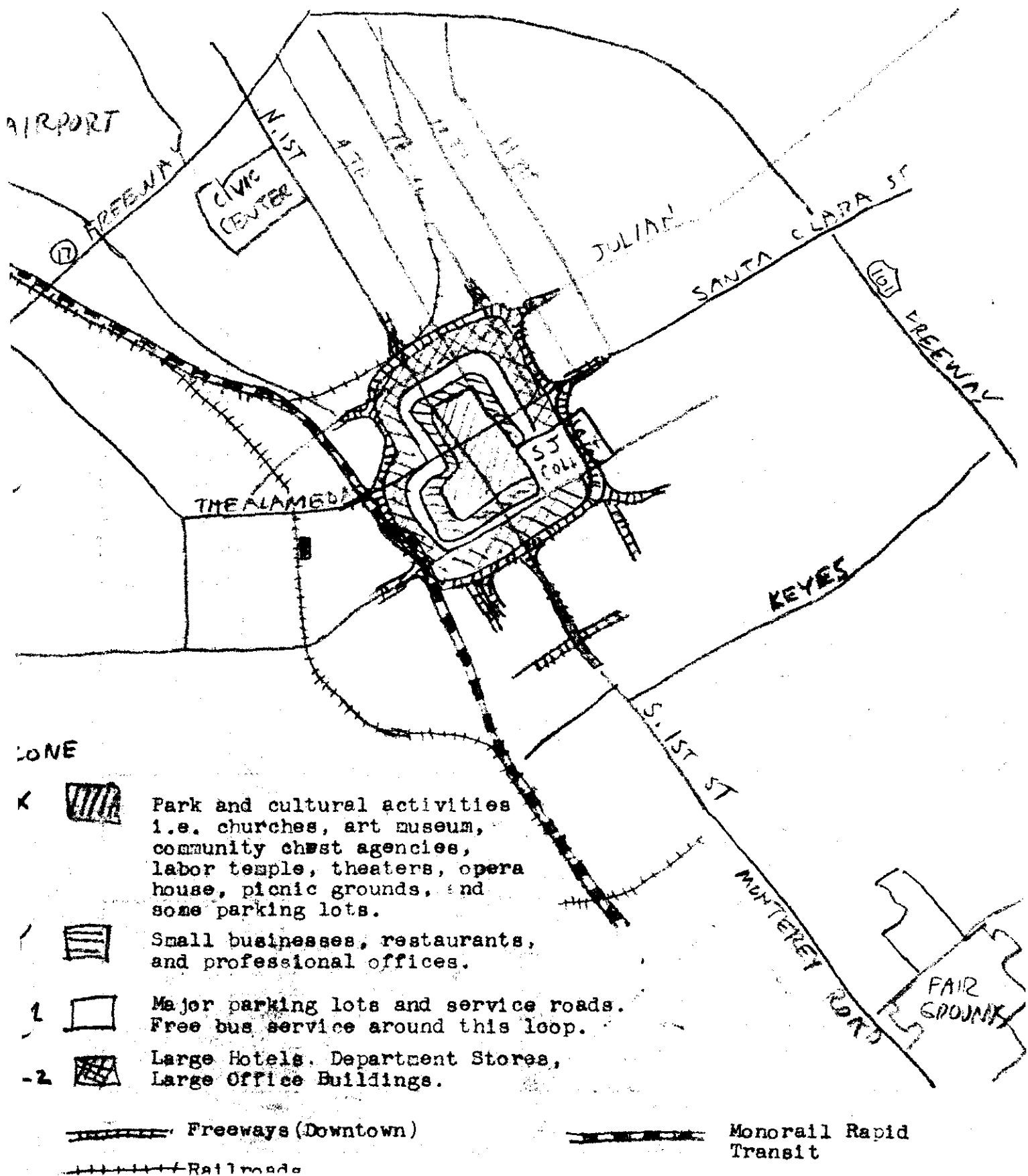
The next item on the agenda was the working out of further details of the next stage of the Central District Master Plan which provided for the tearing down of more office buildings and stores to make room for more park area, churches, and other cultural structures. The historical society had just announced that they had found old plans and photographs of the First Congregational Church and the old Synagogue Bickur-Cholim, so that they could procede with plans to restore old churches which were important in the history of San Jose. Fortunately for the historical society several religious such as the Baptists, Roman Catholics, Unitarians, and Episcopalians had weathered the era when people thought downtown property was too valuable to be used for religious and other cultural purposes.

Commissioner Brown moved that land now in part for parking lots and in part for the central park be zoned for church use and that such property be sold through the redevelopment agency to the appropriate religious denominations for reconstruction in cooperation with the historical society. Following a second by Commissioner Smith, several citizens asked for the floor ^{objected} A spokesman for the Foundation for Religious Freedom/to the motion as a violation of the principle of separation of church and state established in the United States Constitution.

Commissioner Anderson suggested that these cases were special in that they are restorations of old churches on the original sites. Then a representative of the Budhist Association said that they hve been unable to obtain a suitable site for their new temple and

CENTRAL DISTRICT MASTER PLAN

1975 A.D.



recreation hall they need. He inquired as to how they should apply for a site in the central park area for their new temple.

Chairman Jones said that requests like this by new groups for sites in the central cultural area created some complications. He suggested that they defer further discussion until next meeting. He appointed a committee of consultants drawn from the staff of the Social Planetarium³ and San Jose State College. The committee was charged with the responsibility of determining what philosophical principles could be used to wisely carry out the concept of the central cultural area, and at the same time adhere to our country's basic policies of democracy and religious freedom. He gave the committee a special charge to explore the possibility of developing a policy based upon a principle similar to maximizing the negative entropy as is done that branch of communication theory known as information theory⁴.

Principles of the Central District Master Plan

In giving instructions to the special committee, Chairman Jones brought the map of the 1975 plan to their attention. He pointed out the zones X, Y, Z-1, and Z-2 which are laid out to group cultural activities such as churches, Y.M.C.A., Y.W.C.A. Labor Unions, Employer Associations, Medical Society, Professional organizations, Art League, League of Women Voters, etc., in their buildings distributed within a flat park area, principally lawn between San Carlos and Julian Streets, and between Market and Fourth Streets. The grouping of different churches within sight of each other is symbolic of our democratic tradition. Most of the office buildings within this area are being torn down or are being converted to offices of cultural agencies such as the Community Chest and agencies such as the Family Service Service Association and the Mental Health Society. The zoning is planned to give a logarithmic rising in the height of buildings from the center to the periphery.

3. A "Social Planetarium" is a combination of digital and analog computers with an ingenious projection and display system by which social and economic phenomena can be simulated and displayed to the public in a way analagous to the display of the stars in the more well known "Astronomical Planetariums". The term "Social Planetarium" is believed to have come from a talk given by Professor Laswell of Yale School of Law in 1958 at the Western Joint Computer Conference.

4. See article on "Information Theory", Encl. Britannica, 1958 edition.

pointed to the aerial photograph on the other wall
of San Jose, 2008 A.D."

The committee how important the plan is to the citizens.

In fact the esthetic effect of the central park with its logarithmically rising skyline became so important to the people of San Jose, that in 1975 they voted to move a twenty-two story hotel that had been completed in 1960, but did not conform to the plan. The buildings at First and Santa Clara Streets had already been converted to cultural use. The Bank of America Building now housed the principle offices of the community chest agencies such as the Family Service Association. The art gallery has two buildings: the J. C. Penney Building and the Roos Bros Building. The First National Bank Building is now a part of an experiment in practical democracy, by which all political parties and special interest groups participating in political action are given office and exhibit space in the same building. This enables our young people to visit the Republicans, Democrats, Socialists, Communists, and any others to compare their programs and arguments all within the same building. If any political^{group} refuses to accept space on the project it may be assumed that they are afraid to be questioned.

As the meeting adjourned, a visitor asked why the people of San Jose placed so much value on this particular zoning plan with the logarithmic rise in building height. Chairman Jones said that psychologists don't agree yet on this subject. He did point out that there are many phenomena which fit this type of curve. For example if one plots the age of our universe, age of our solar system, and the age of the earth one obtains a similar rising curve. Similar profiles of man's mental and emotional development, the number of inventions and discoveries per year, and the annual production of power have similar logarithmically rising curves.

It appears that this structure of the cultural center of a city helps people feel closer to nature even though they are in an artificial environment. In some way this^{the} organization of center or heart of the city reminds people of the progress of mankind has made in the past, and gives him a more realistic feeling for the

complexity of modern civilization and how to deal with the problems of our society with confidence.

Several religious organizations have moved their West Coast headquarters to San Jose and have established cathedral type downtown churches where business leaders and governmental officers and just anybody can come and meditate before making important decisions so that they can be sure their decisions are consistent with their true selves.

June 21, 1958

Frederick B. Wood
2346 Lansford Ave.
San Jose, California

Frederick B. Wood
P.O. Box 5095, San Jose
Calif. 95150

SEPR No. 2-B
August 30, 1967

Supplementary Notes On "SAN JOSE 2008 A.D."
(SEP No. 2, September 1958, pp. i-iv, 1-8)

The following references are of significance in regard to population projections for the future:

World: Norton Ginsburg, et al, ATLAS of Economic Development, University of Chicago Press (1961).
Reference point for urban population is on pp. 34-37. (This does not predict future, but is essential base point for many studies.)

U.S.A.: "Kiplinger Forecast of Population Growth in the United States (1960-1975)" (a map of U.S.A.) in 'The United States: Great Changes Ahead at Home' in The Kiplinger-Hammond Forecast Atlas of the World, Maplewood, N.J.: C. S. Hammond Co. (1964)

San Francisco Bay Area:

Future Development of the San Francisco Bay Area 1960-2020. December 1959, U.S. Dept. of Commerce, Business and Defense Services Administration, for U. S. Army Engineers District, San Francisco Corps of Engineers. 94pp plus 5 appendices and 21 plates.

Note plates 3-9 show population distribution projections for 1960 to 2020 in ten year steps. (Scale of one dot per 1000 persons) There is sufficient detail to scale off San Jose population trends from these plates.

Kingsley Davis and Eleanor Langlois, "Future Demographic Growth of the San Francisco Bay Area." Berkeley, U. C. Institute of Governmental Studies (1963) 27pp. \$1.50.

Only total city population statistics..

Santa Clara County:

County of Santa Clara Planning Department, 70 W. Hedding St., San Jose, Dec 1963, "Land Use Issues in Santa Clara County." 28pp.

Includes map of existing land use from which guesses of population density could be interpreted.

_____, INFO 212, July 1966, "Population and Housing, April 1, 1960 and April 1, 1966."

_____, INFO 213, July 1966, "Population and Housing, School District, Census of 1966"

City of San Jose:

"San Jose General Plan (Map) - A Physical Development Policy Statement" dated January 3, 1961.

Map of city is coded by number of dwelling units

Frederick B. Wood
P.O. Box 5095, San Jose
Calif. 95150

SEPR No. 2-B
August 30, 1967

Supplementary Notes On "SAN JOSE 2008 A.D."
(SEP No. 2, September 1958, pp. i-iv, 1-8)

The following references are of significance in regard to population projections for the future:

World: Norton Ginsburg, et al, ATLAS of Economic Development, University of Chicago Press (1961).
Reference point for urban population is on pp.34-37. (This does not predict future, but is essential base point for many studies.)

U.S.A.: "Kiplinger Forecast of Population Growth in the United States (1960-1975)" (a map of U.S.A.) in 'The United States: Great Changes Ahead at Home' in The Kiplinger-Hammond Forecast Atlas of the World, Maplewood, N.J.: C. S. Hammond Co. (1964)

San Francisco Bay Area:

Future Development of the San Francisco Bay Area 1960-2020. December 1959, U.S. Dept. of Commerce, Business and Defense Services Administration, for U. S. Army Engineers District, San Francisco Corps of Engineers. 94pp plus 5 appendices and 21 plates.

Note plates 3-9 show population distribution projections for 1960 to 2020 in ten year steps. (Scale of one dot per 1000 persons) There is sufficient detail to scale off San Jose population trends from these plates.

Kingsley Davis and Eleanor Langlois, "Future Demographic Growth of the San Francisco Bay Area." Berkeley, U. C. Institute of Governmental Studies (1963) 27pp. \$1.50.

Only total city population statistics..

Santa Clara County:

County of Santa Clara Planning Department, 70 W. Hedding St., San Jose, Dec 1963, "Land Use Issues in Santa Clara County." 28pp.

Includes map of existing land use from which guesses of population density could be interpreted.

_____, INFO 212, July 1966, "Population and Housing, April 1, 1960 and April 1, 1966."

_____, INFO 213, July 1966, "Population and Housing, School District, Census of 1966"

City of San Jose:

"San Jose General Plan (Map) - A Physical Development Policy Statement" dated January 3, 1961.

Map of city is coded by number of dwelling units per acre., as limited by proposed zoning.