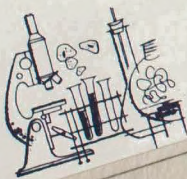


Amfield



**THE CONTROL OF HUMAN REPRODUCTION**  
A Research Program



## THE CONTROL OF HUMAN REPRODUCTION: *People...*

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PPFA receives more than 1,000 letters a month from desperate parents seeking information and assistance in planning their families. Here are examples:

### From Michigan

I am the mother of 12. I have seven living children. I am 31 years of age. I would like to get this book right away. I had my last baby two weeks ago. It was born dead. So please hurry.

### From Italy

I am 20 and have four children. When my husband touches me, I get mad. I cry and insult him. I realize later he is not responsible but I shall commit suicide if I become pregnant again. You are my only hope.

### From Louisiana

If any way you could hep me I sure will thank you. I have 8 children ar-ranging from 7 wks to 7 years old. So please help me to space the other if any. So please answer my letter. So I can know if I can be helped.

### From Pennsylvania

My husband and I would like some information of Birth Control, we are going to be married four years next month, we have already three lovely children, the oldest is our son nearly three years old, and two sweet little girls. I just feel as though I wouldn't be able to take care of another baby so soon. I am so nervous from having my children so close and caring for them that I feel it isn't fair in respect to my children and my husband.

### From Pakistan

Since I am married 15 years my periods came twice. All the rest of the time I am pregnant. Five children are living and the baby so sick he cannot grow. I beg you give me medicine to stop being pregnant.

### From Arkansas

Will you please sir or madam send me the information I need it very bad. I have 4 children and the oldest is four. I like a space of at least 2 years between the rest. I am 19 years old. And married.



## THE CONTROL OF HUMAN REPRODUCTION: ...and Population

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### Arnold Toynbee

". . . Man will have to face up eventually to the problem of limiting the birthrate." (October, 1956)

### Vannevar Bush

"Man is using up his resources at an appalling rate . . ." World population is increasing at a rate "which renders distress, famine, and disintegration inevitable unless we learn to hold our numbers within reason." (January, 1956)

### Julian Huxley

"The problem of population is the problem of our age . . . . The human race is adding to its number more than 90,000 people every day of the year. During the present century the most decisive factor has been . . . the application of scientific medicine, or what we may call death control . . . . The space and resources of our planet are limited . . . if science can be applied to increase the rate of food production . . . it can and should be applied to reduce the rate of people production." (June, 1956)

### Harrison Brown

"At some point in time, population growth must stop and I personally would prefer it to stop within the framework of low death rates coupled with low birth rates, rather than the reverse . . . increased numbers of persons create enormous political and social difficulties . . . the larger the number of persons inhabiting our earth, the more difficult will be the preservation of individual freedom and human dignity." (August, 1956)



## THE CONTROL OF HUMAN REPRODUCTION: *Desperate Last Resort*

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When effective and acceptable methods of conception control are not available, desperate mothers turn to abortion to limit the size of their families.

In the United States, authoritative estimates of induced abortions run upwards from 750,000 a year. Some are performed by the women themselves; a very few are considered therapeutic and are done in hospitals. But the vast majority are done by untrained, unscrupulous operators. Investigators estimate that a large proportion of criminal abortions are done on married women made desperate by more children than they can care for.

In Japan, 1,142,949 abortions were reported in 1954; informed estimates of the number which were not reported bring the actual abortion total to more than the 1,765,126 live births during the same year. The government is giving full support to contraceptive services through public health centers, but existing methods make mass instruction difficult.

In France, the number of illegal abortions is higher than the number of births, according to recent medical and sociological estimates based on nationwide surveys of hospital and police reports.

In Hungary last summer, the government launched a program to provide contraceptives in order to "fight the terrible scourge of abortion."

In country after country, millions of women suffer the physical, emotional and economic costs of abortion. But abortion is the wrong way to limit family size. Planned Parenthood is the right way.



## THE CONTROL OF HUMAN REPRODUCTION: 'A *Concerted Program*'

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Help must somehow be found for overburdened mothers, for threatened families, for world stability.

In many areas, present contraceptive methods can be made more widely available through mass education programs. But for millions of people who most need contraception, in the U.S. and in other countries, present methods are no solution:

They are clumsy to use.

They require sanitary facilities the people do not have.

They cost too much.

They go against cultural or religious patterns in some countries.

They deteriorate in hot or wet climates.

New methods of fertility control must be found which parents can accept and use. Scientists feel certain that one or more substances can be developed, to be taken by mouth or injection, that will protect from unwanted pregnancy for days, weeks or months.

The way to find new methods is through research. PPFA and other agencies sponsor scientific investigation of the physiology of human reproduction in an effort to discover improved contraceptive methods and to solve outstanding problems in infertility.

The soundness of this quest was indicated most recently by a conference of a score of experts in the field, held under the joint auspices of the Federation and the Population Council. Science Magazine (September 28) carried the conference's summary statement which described the "urgent need for a concerted research program" and declared:

"Despite tremendous gaps in our knowledge, there does exist a sufficient base of information to justify concerted efforts to solve the known problems in this field."



## THE CONTROL OF HUMAN REPRODUCTION: 8 Years of Progress

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Since 1948, the Planned Parenthood Federation of America has spent nearly \$400,000 on research for more effective and acceptable methods of contraception. The program has been administered by the Robert Dickinson Research Memorial, named for an outstanding pioneer in the field.

More than a score of investigations by scientists working at universities, hospitals, laboratories and other research facilities have been supported by these grants.

Nearly half of the grants have supported studies in the interrelation of hormones and allied steroids. One eight-year series of investigations in this field has recently produced the most promising lead so far developed; preliminary clinical testing is now in progress. Another lead is being followed by the use of radioactive isotopes.

A number of projects have been concerned with plant materials that various peoples are reported to have used for fertility control.

Female reproductive physiology has been studied from several approaches, and some work has been done on the physiology of the male reproductive system. Analysis is currently being made of a pioneer body of information on the reproductive histories of 600 women, with some records covering nearly 20 years.

A unique achievement was the decision, in October, 1956, to establish a Planned Parenthood Research Professorship at the Medical Center of the University of Kansas. The distinguished leadership of the Kansas Medical Center worked closely with the Dickinson Research Memorial in developing this program, which is assured for a minimum of five years and may be made a permanent chair. To provide the permanent endowment, \$150,000 will be required.



## THE CONTROL OF HUMAN REPRODUCTION: *Scientific Leadership*

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A key aspect of the PPFA research program has been the sponsorship of conferences, designed to bring together leading scientists in related disciplines for free and privileged exchange of experience and opinion.

Since 1952, five such meetings have been arranged, concerned with different aspects of the work. They include:

Colloquium on Human Fertility, Arden House, 1952

Conference on Lithosperm, New York City, 1953

Conference on the Social Aspects of Family Planning and Fertility Control, Arden House, 1954

Conference on Abortion, Arden House, 1955

Conference on the Physiology of Reproduction (co-sponsored with the Population Council), New York City, 1956

Out of these meetings has come a more unified approach which has influenced the activity, not merely of those who have worked closely with the Federation, but of scientists throughout the world.



## THE CONTROL OF HUMAN REPRODUCTION: *'Knowledge now exists...'*

The current status of research for improved contraceptive methods was aptly put in a resolution signed by 16 distinguished scientists attending the 1956 Conference on the Physiology of Reproduction:

"Forty years ago, a public cry was heard calling for a cure for tuberculosis. The consequent marshalling of medical, social and scientific resources has, in large measure, brought about the control of this disease, and large scale efforts are currently being made to curb cancer and other conditions menacing health and life.

"We believe the time has now come for a similar marshalling of universal resources for the control of the world's mounting population pressures . . . We are aware that knowledge now exists to make possible steady advance toward achieving that control if sufficient support can be provided.

"We strongly endorse the efforts of the PPFA and the Population Council to mobilize social, financial and scientific resources in this field, and we pledge our own efforts in this behalf."

Signers included:

Carl G. Hartman, Director Emeritus, Ortho Research Foundation  
Warren O. Nelson, Medical Director, Population Council  
Myron I. Buchman, M.D., Cornell University Medical College  
Gordon W. Douglas, M.D., New York University College of Medicine  
Robert Gaunt, Director of Endocrine Research, Ciba Pharmaceutical Products, Inc.  
Roy O. Greep, Dean, School of Dental Medicine, Harvard  
Alan F. Guttmacher, M.D., Director, Department of Obstetrics and Gynecology, Mt. Sinai Hospital  
Kermit E. Krantz, M.D., University of Arkansas Medical Center  
R. K. Meyer, University of Wisconsin  
Gregory Pincus, Director, Worcester Foundation for Experimental Biology  
Robert W. Noyes, M.D., Stanford University School of Medicine  
Samuel R. M. Reynolds, University of Illinois College of Medicine  
John Rock, M.D., Director, Rock Reproduction Center  
C. P. Rhoads, Director, Sloan-Kettering Institute for Cancer Research  
Irving H. Sher, representing the Director of Research, National Drug Co.  
Nathan Millman, Director, Division Physiology and Pharmacology, Ortho Research Foundation



## THE CONTROL OF HUMAN REPRODUCTION: *Areas for Investigation*

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The structure, composition and functioning of the reproductive organs are now known to be far more complex than formerly supposed. At the 1956 Conference, scientists agreed that the areas sketched in the following questions are now ready for full investigation:

### A. Sperm and semen

How is a sperm produced from a generalized cell? What are the cytochemical constituents of the finished sperm? What are the sources and the chemical constituents of the seminal plasma? How are sperm transported and what mechanisms are important in the maturation they undergo? What is the physiology of the musculature of the male reproductive tract? Why are so many sperm produced, and what numbers survive to different stages of transport from the testis to the site of fertilization?

### B. Ovum and ovary

What are the structure and physio-chemistry of the ovary, its follicles, the corpus luteum, and the ovum itself? What are the precise factors controlling ovulation? How can the precise time of ovulation be determined? How do ovarian, tubal, uterine, and vaginal secretions affect the sperm? What chemical compounds must be present in the tube to permit the successful union of sperm and egg? How and where are those compounds produced?

### C. Fertilization

What is the actual survival time of sperm and of ovum in humans? How does the sperm 'find' the ovum? By what mechanisms do the two cells unite? How is the fertilized cell transported to the implantation site in the uterus? What chemical compounds are essential to implantation? Where and how are these compounds produced?

(Continued on next page)



(Continued)

D. Hormones

By what mechanisms do the pituitary hormones affect the reproductive processes? What are the interrelations of ovarian and adrenal hormones in reproduction? What are the precise roles of such hormones as estrogen, progesterone, relaxin, etc., in the various stages of the reproductive process? What are the origins and functions of male hormones in the female, and of female hormones in the male? Are the hormones involved in the male side of the reproductive process as numerous and complex as those in the female side? How are psychological factors related to hormonal elements in the reproductive process?

E. Antibodies

What substances involved in the reproductive process can be used to produce their own anti-bodies, thus becoming auto-inhibitory and breaking the chain of reaction in the reproductive process? Can the effects of these anti-bodies be readily reversed? Are such anti-bodies related in their mode of action in the body to other endogenous and exogenous substances? How can anti-bodies be guarded from producing unfavorable effects in tissues not involved in the reproductive process? Can chemical analogues of natural substances, such as blood substances and viruses, be used to affect fertility?

Each of these questions is concerned with one or more points where the reproductive process might, perhaps, be interrupted without injury to the functioning of the total organism. The answers will require much detailed investigation.



## THE CONTROL OF HUMAN REPRODUCTION: *To Guide the Program*

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The PPFA research program is coordinated by the Biologic Research Committee, which passes on applications for grants and charts the major direction of research policy. Committee members include:

Carl G. Hartman, Chairman

Director Emeritus, Ortho Research Foundation and Professor Emeritus of Zoology, University of Illinois

Myron I. Buchman, M.D.

Instructor, Obstetrics-Gynecology, Cornell University Medical College

M. C. Chang

Research Associate, Worcester Foundation for Experimental Biology

William V. E. Doering

Professor of Chemistry, Yale University

Alan F. Guttmacher, M.D.

Director, Obstetrics-Gynecology, Mt. Sinai Hospital, New York

Louis M. Hellman, M.D.

Chairman, Obstetrics-Gynecology, State University of New York, and  
Chairman, Medical Committee, Planned Parenthood Federation of America

M. James Kopac

Professor of Zoology, New York University

James H. Leathem

Professor of Zoology, Rutgers University

Seymour Lieberman

Associate Professor of Biochemistry, College of Physicians and Surgeons, Columbia University

John MacLeod

Associate Professor of Physiology, Cornell University Medical College

Warren O. Nelson

Medical Director, Population Council

Ralph Reece

Professor of Dairy Husbandry, Rutgers University

Abraham White

Associate Dean, Albert Einstein College of Medicine, Yeshiva University

### Staff

William Vogt

National Director, Planned Parenthood Federation of America

Margaret Snyder

Executive Secretary, Dickinson Research Memorial



## THE CONTROL OF HUMAN REPRODUCTION: *Current Studies*

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The following projects are currently receiving support from PPFA:

Clinical Testing of Various Steroids Affecting Ovulation

John Rock, M.D., Harvard Medical School

Gregory Pincus, Worcester Foundation for Experimental Biology

Clinical stage of work supported since 1948.

Anti-Fertility Effects of Plants

Robert H. Dreisbach, Stanford University

A three-year plant-screening study.

Influence of Micro-organisms on Human Spermatozoa

Albert Schatz, National Agricultural College

Inquiry into one phase of sperm behavior.

Clinical Study of a Foam Tablet Contraceptive

H. Hudnal Ware, M.D., University of Virginia College of Medicine

Testing a contraceptive much simpler to use than most current methods.

Biosynthesis of Estradiol III

Joseph L. Rabinowitz, Veterans' Hospital, Philadelphia

Use of radio-isotopes to trace one pattern of hormone reaction.

Characteristics of Menstrual and Reproductive Cycles of Women

S.R.M. Reynolds, Illinois Medical, Chicago

Analysis of a monumental body of data.

Interrelationship of Pituitary-Adrenal-Ovarian Axis . . .

Richard Frank, M.D., and Jay J. Gold, M.D., Michael Reese Hospital, Chicago

Inquiry into one group of hormones affecting reproduction.



THE CONTROL OF HUMAN REPRODUCTION: *Approved Project\**

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Effects of Various Chemical Compounds on the Growth of Pure Cell  
Cultures of Male Germinal Elements in Culture

Principal Investigator: Murray A. Brown  
Instructor of Dairy Science

Texas Agricultural Experiment Station

It is known that spermatozoa develop out of a simpler type of cells that pass through several stages of development before they become spermatozoa. The sequence of events in this metamorphosis is not yet fully understood. The objective of this project is to study these changes by observing bovine male germ cells subjected to various tissue-culture techniques.

Total required for one year . . . . . \$7,592.40

\*PPFA's Biologic Research Committee has approved this application for a grant-in-aid. Funds will be appropriated as contributions for research become available.



# THE CONTROL OF HUMAN REPRODUCTION: *Approved Project\**

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## Blood Supply of the Testis and its Response to Endocrine Treatment

Principal Investigator: Robert L. Bacon  
Associate Professor of Anatomy

University of Oregon Medical School

Many steroid hormones, especially estrogens, are known to reduce the testis, stop the production of sperm, and render the male sterile. Since disturbance in the blood vessels of the testis is one of the first evidences of pathology in steroid-treated animals, this proposal is to investigate the normal circulation in the testes and adnexa, and to observe the detailed alterations that occur with the administration of steroids. The work will be done with hamsters and mice.

Total required for one year . . . . . \$7,929

\*PPFA's Biologic Research Committee has approved this application for a grant-in-aid. Funds will be appropriated as contributions for research become available.



# THE CONTROL OF HUMAN REPRODUCTION: *Approved Project*

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## The Role of Essential Fatty Acids in Reproduction

Principal Investigator: Ralph T. Holman  
Professor

Hormel Institute  
University of Minnesota

Little attention has been given in the past to the role of dietary fats in reproduction, although some evidence suggests that fertility may be influenced by the amounts and kinds of fatty acids present in the individual organism. It is proposed in this study to investigate the role of polyunsaturated fatty acids in fertility. The fatty acids in both testes and ovaries of the experimental animals (rats) will be analyzed and the effects of dietary differences will be studied.

Total required for one year . . . . . \$9,388

\*PPFA's Biologic Research Committee has approved this application for a grant-in-aid. Funds will be appropriated as contributions for research become available.



## THE CONTROL OF HUMAN REPRODUCTION: *Approved Project\**

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### A Study of Factors Influencing Male Fertility

Principal Investigator: Robert B. Leach, M.D.

Director, Woman's Hospital Fertility Clinic  
Assistant Professor of Medicine

Wayne State University, Detroit

It is not yet clear to what extent the level of the enzyme hyaluronidase contained in semen is related to the degree of fertility in man. It is here proposed to make a series of analyses of semen for hyaluronidase content, along with assays of urinary sex hormones in fertile and infertile men. The rate of hyaluronidase release by the sperm of these men will also be determined.

Total required for one year . . . . . \$6,999.14

\*PPFA's Biologic Research Committee has approved this application for a grant-in-aid. Funds will be appropriated as contributions for research become available.



## THE CONTROL OF HUMAN REPRODUCTION: *Approved Project\**

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### The Biological Function of the Antigenically Active Constituent from Seminal Plasm Which Adheres to Spermatozoa

Principal Investigator: Alfred J. Weil, M.D.  
Director, Bacteriology Laboratories

Bronx Hospital, New York

Semen is composed of sperm cells and seminal fluid, in which the sperm cells are suspended. Little is known about the possible biological function of proteinic substances present in the seminal fluid, but it has been suspected that they may be important for fertility. Recent work by the applicant has shown that the seminal fluid contains a substance of which a part becomes firmly adherent to the sperm cells on their way through the genital tract. Highly sensitive immunological techniques were developed, which make it possible to trace this substance. The object of this study is to take advantage of these new techniques in order to obtain information on the chemical nature of this substance and its role in fertility.

Total required for one year . . . . . \$8,353

\*PPFA's Biologic Research Committee has approved this application for a grant-in-aid. Funds will be appropriated as contributions for research become available.



## THE CONTROL OF HUMAN REPRODUCTION: *Approved Project\**

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### A Study of Genetically Caused Sterility in Mice

Principal Investigator: Allan W. H. Braden

Albert Einstein College of Medicine,  
Yeshiva University, New York

It has been known for some time that male mice of a certain strain, carrying two different but related genetic factors, are partially or completely sterile, whereas females of the same type are fully fertile. The sterile males produce and ejaculate sperm in more or less normal numbers but few of the sperm penetrate the eggs. The hypothesis now being tested is that there is an interaction between the two types of sperm produced by the sterile males.

Total required for one year . . . . . \$500

\*PPFA's Biologic Research Committee has approved this application for a grant-in-aid. Funds will be appropriated as contributions for research become available.



## THE CONTROL OF HUMAN REPRODUCTION: *Related Programs*

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At least 75 research institutions are carrying out experimental studies in the physiology of reproduction with the assistance of grants from various sources. These institutions include California, Chicago, Columbia, Cornell, Harvard, Johns Hopkins, Stanford, Yale and other universities. Hospitals, medical schools, and research institutes also contribute significantly to this work.

One hundred and fifty-eight such projects are listed by the Bio-Sciences Information Exchange of Washington; about half are concerned with some phase of pregnancy. Much of this work is supported by the National Institutes of Health (U.S. Public Health Service).

Several pharmaceutical houses are taking increased interest in this field. One company is known to spend \$200,000 annually on research for an oral contraceptive.

The Population Council, Inc., organized in 1952, has been actively concerned with "an examination of existing information relating to the physiologic mechanisms of reproduction . . . The Council has undertaken a survey of the studies on reproductive physiology that have been made and are being made throughout the world. It has also attempted to determine the areas of study in which efforts should be made to develop additional research" (Report of Population Council Inc., 1952-1955). The Medical Director of the Population Council, Dr. Warren O. Nelson, is a member of PPFA's Biologic Research Committee.

Leading scientists point out the competition that exists for the interest of young researchers and stress the importance of enlisting more workers in this field. This is one of the problems on which the Biologic Research Committee is currently working. As more money becomes available to support research, it is expected that more scientists will be attracted to this urgently needed work.



## THE CONTROL OF HUMAN REPRODUCTION: *International Channels*

Once a truly simple, cheap, dependable, harmless, and acceptable contraceptive has been found, there will be no lack of channels for distributing it to the peoples of the world. Already such channels exist in many countries, and more are being developed, as awareness grows.

### Governmental programs

In India, the Government will spend \$2,000,000 a year for the next five years on the national family planning program. A significant portion of that money is available to buy contraceptives for low-income people. The program also provides for laboratory and mass testing of improved contraceptive methods as they become available.

In Japan, a vast program of contraceptive service and education has been made available in public health centers.

In Egypt, the health service has opened six birth control centers in Cairo and six in rural areas. These serve as pilot projects for a planned nation-wide campaign to make contraception a general practice. Population pressures are in the background of recent political and international crises in this country.

In Bermuda, Barbados, and Puerto Rico, government health services, are already serving as channels for birth control education.

Mainland China has recently launched a government drive "to extend the knowledge and practice" of birth control "to protect the health of maternity womanhood and . . . to ensure that the next generation may be brought up better." The Minister of Health publicizes both traditional Chinese methods of contraception and the best modern methods now known. In June 1956 she made public "confession" of her failure "to adequately popularize birth control" and promised to "develop our work concerning publicity and education." China's population, now at 600 million, is growing at the rate of 12 million a year.

### Volunteer organizations

The International Planned Parenthood Federation links family planning organizations in 18 countries — Australia, Belgium, Ceylon, Denmark, Great Britain, Holland, Hong Kong, India, Italy, Japan, New Zealand, Pakistan, Puerto Rico, Singapore, Sweden, Union of South Africa, U.S.A., Western Germany. These groups do valuable work in providing contraceptive services and educating people and governments.

In all, there are birth control clinical facilities in 33 countries.



**THE BABY BOOM --**

**"BUILT-IN ACCELERATOR FOR PROSPERITY?"**

Responsible U.S. business and civic leaders are taking a sober second look at the "baby boom" -- and at the widely merchandised notion that bumper baby crops guarantee never-ending economic expansion. This research paper is designed to point up some infrequently considered implications of America's current unprecedented rate of population growth.



## THESIS

"The Census Bureau believes that the 1975 population could be 221 million.... The rate of growth is the strongest buttress of confidence in the continuance of unprecedented prosperity."

TIME MAGAZINE  
January 10, 1955

"This country is growing in many ways.... The baby boom is now in its 15th year.... Another big boom, starting in early '60's, is almost certain.... U.S. Population...by 1975, 220 million.... People with vision see great expansion ahead. To expect and to plan on it...that is realistic."

KIPLINGER WASHINGTON LETTER  
December 24, 1954

"It all adds up to a \$500,000,000,000 opportunity right now. ....And the tremendous job of keeping up with future population growth is still ahead.... You, as an American, can set your hopes high."

THE FUTURE OF AMERICA  
Published by Advertising Council  
November, 1954

"A booming population means an America with a built-in economic accelerator."

LOOK MAGAZINE  
March 18, 1955

## DISSENT

"Such a rise cannot alone insure us against depression.... We experienced major or minor depressions in several decades when the rates of population increase were far larger -- in some cases double -- than projected for the period ahead."

BANK OF THE MANHATTAN COMPANY  
February 7, 1955

"These facts (on America's phenomenal population growth) are at the root of every domestic, political, economic, and social controversy... (and) raise some fundamental questions about the nation's preparation for an unlimited Cold War with the Communists."

JAMES RESTON  
NEW YORK TIMES  
February 26, 1955



### QUERIES

How well based are the predictions of accelerating growth?

In what economic groups are the babies being born?

How does the population growth affect the quality of living?

What are the effects on the schools?

How will employment be affected?

What resource base is available to support greatly increased population?

What bearing has this growth on our relations with other countries?



## HOW WELL BASED ARE THE PREDICTIONS OF POPULATION GROWTH?

1. According to U.S. Statistical Abstract (1953) this country has roughly doubled its population 4 times since 1815:

<u>Years</u>	<u>End population</u>	<u>Approximate immigration in period*</u>
1790 - 1815	8,000,000	150,000 (est.)
1816 - 1840	17,000,000	750,000 (total)
1841 - 1865	35,000,000	3,570,000 (total)
1866 - 1900	75,000,000	13,000,000 (total)
1901 - 1950	150,000,000	14,500,000 (net)

2. Before 1915, U.S. birth and death rates can only be estimated, but from 1810 to 1900 the birth rate is estimated to have declined from 55 per 1000 to about 25 per 1000. The following selected figures show how declining death rates increase the rate of population growth even with lowering birth rates:

<u>Year</u>	<u>Birth rate</u>	<u>Death rate</u>	<u>Natural increase</u>
1900	unknown	17.0	unknown
1915	29.5	13.2	16.3
1920	27.7	12.6	15.1
1939	18.8	10.3	8.5
1943	22.7	10.7	12.7
1947	26.6	9.9	16.7
1954	25.2	9.6	15.6

3. On the basis of figures through 1952, P. K. Whelpton, former director of the U.N. Population Division and now director of the Scripps Foundation for Population Studies, says:

"Growth at the high rate of the past decade came heavily from non-recurring causes and is not likely to be maintained."

He cites recent economic changes, and military movements and policies affecting the situation, causing a heavy make-up of postponed births, a lowered age of marriage, and a tendency to have children earlier and closer together.

Groups now coming to marriage are the smaller groups born in the '30's. The 1954 marriage rate was 5.2% lower than that of 1953; this can be expected to affect 1955 birth rates. This decline will probably not last beyond 1960. when the recent large 'baby crops' come to marriage age.

4. It is not yet clear whether family size is actually increasing. Women who reached age 45 in 1950-54 averaged 2.2 children ever born; women reaching the same age in 1920-24 averaged 3.5 children ever born. Recent opinion polls among women of child-bearing age on "ideal numbers of children" indicate an average of 2.8, but there is no basis for estimating how closely performance will correspond with expressed preferences.

\*Immigration figures are of varied reliability before 1900, and no emigration figures are available before 1907.



5. Various projections of total population in 1965 and 1975 are available.

<u>Source of estimate</u>	<u>1965 population in millions</u>	<u>1975 population in millions</u>
Census Bureau, 1955	184 to 188	
Census Bureau, 1953	180 to 189	198 to 221
Paley report, 1950		193
United Nations	183	197
FORTUNE study	185	206

On any basis of estimate it seems probable that there will be substantial population growth in the next twenty years.

#### IN WHAT ECONOMIC GROUPS ARE THESE CHILDREN BEING BORN?

1. There is a widespread assumption that the number of children per family is now virtually the same in all economic levels of our society. Figures are quoted to show that families with less than \$4000 have 2.18 children -- a mere .05% increase over the national average. However, these figures leave out of account the 17 million families who have no children under 18.
2. The relationships between family size and income appear in a different light when family incomes are described in terms of the numbers of children in each income group. Of 51 million children under 18 in the U.S. in 1953\*:

27 million, or 53% of all U.S. children

are in families each having less than \$4000 income

and totaling 20% of all family income

18 million children, 36% of all U.S. children

are in families with \$4000 to \$7000 income

totaling 35% of all family income

5 million children, 10% of all U.S. children

are in families with more than \$7000 income

totaling 45% of family income

\*Based on U.S. Census Bureau and Commerce Department figures for 1953.



3. The recent Fortune publication, "The Changing American Market," calls \$4000 income after taxes the "boundary line...at which quantity changes into quality...(and) the average sized family...has money to spend on the 'extras'".

This "boundary" may be questioned in light of Labor Department figures of \$3,182 to \$4,454 minimum spendable income required for an "American standard of living" in 34 cities. Another index is provided by the Heller Committee for Research in Social Economics of the University of California which publishes a minimum budget for a family of four in the San Francisco Bay area; in September, 1954 the minimum required for a wage earner who was a home-renter was \$5,335, for a wage earner who owned his home, \$5,629. The Census Bureau shows \$3,890 as the median income before taxes. And a family of two adults and two children pays \$226 in federal income tax on \$4,000 income, if there is one wage earner.

4. Even if Fortune is right, there remain more than half of our children in families with less than \$4,000 income. Can children in these low income groups be called good "economic accelerators"?

9,793,000 are in families with 4 or more children.

3,696,000 of these are in families with less than \$2,000.

In November 1954, New York City was providing Home Relief to 27,560 families which averaged 3.6 children per family. Another 7,631 families, with 2.58 children, were receiving Aid to Dependent Children. The city averages 1.4 children per family.

5. The following table shows the distribution of family size by income levels\*:

Children per family	Number of families (thousands)	Total children (thousands)	Total children by income levels (thousands)				
			under \$2000	\$2000 to 4000	\$4000 to 7000	over \$7000	median income
1	8,954	8,954	1,346	2,951	3,590	1,077	\$4,109
2	7,414	14,828	1,928	4,745	6,079	2,077	4,268
3	3,952	11,856	1,778	4,624	4,031	1,423	3,817
4	1,656	6,624	1,259	2,451	2,385	132	3,765
5	744	3,720	893	1,537	1,004	186	3,206
6	688	5,145	1,544	2,109	1,235	257	3,045
Total	23,408	51,127	8,748	18,417	18,324	5,152	\$3,890

\*Projected from U.S. Dept. of Commerce figures.



## HOW DOES POPULATION GROWTH AFFECT THE QUALITY OF LIVING?

1. More than half of the 27 million children in below-\$4000 families live in what the Census Bureau calls urban areas. How many of these are in metropolitan centers is not known. A grand jury, investigating New York tenement fires in 1955 says: "The greatest city in the world is surely but not slowly being permitted to deteriorate and decay. Slums are being created much faster than they are being eliminated. Overcrowding is the germ of the slum disease." (Our emphasis.) Most of New York's children are found in the overcrowded slum areas of the city.
2. Housing pressures generated by population growth have led to ruthless subdivision of housing space: 3 families live now where 20 years ago 1 family lived, and most of these families have many children. New York City has prohibited further subdivision after July 1, 1955, but the damage has been done.

In a typical slum area, around University Settlement House on New York's lower East Side, a 1950 survey showed "651 per residential acre...more than 5 times the maximum density recommended by American Public Health Association. Compared to the city as a whole there is a higher proportion of children in the population." Casual observation indicates that density has increased in the area since that survey.

The City Planning Commission has defined 40 areas of intense need, and there are at least twice as many substandard areas in New York.

The prospect is particularly bleak for Negroes, whose birth rate is 60% higher than the city's birth rate for whites; and for Puerto Ricans, with birth rates two and a half times as high as the white's.

3. There are now about 15,000 abandoned or orphaned children dependent on New York City for institutional care -- at a cost of about \$19 million a year. These children "had the misfortune to be born in homes broken by parental discord, desertion, illness, death, or some other calamity," reports the New York Times (2/9/55). "As they grow older in one institution after another and finally realize they are unwanted they become despondent, cynical, bitter. Some slip into delinquency, become emotionally disturbed or mentally ill." Existing institutions are tragically inadequate to care for these children; Commissioner McCarthy says the situation at Children's Center is "reaching a dangerous stage."

"The Citizens' Committee on Children observes that the number of 'unwanted' children shows a steady increase," the Times article continues. "With forecasts of rapidly increasing birth rate in the next fifteen years...the City is falling farther and farther behind in placing these children....Unless there is a radical change in the city's foster care program now, it will break down completely in the foreseeable future, and thousands of dependent and neglected children will either be homeless...or will be herded into 'temporary' shelters...to wait out the years until they may be legally returned to the streets."



4. Being 'unwanted' is a tragically frequent experience among children living with their own parents. Charles Cook, Director of University Settlement, says child guidance clinics find that about 90% of their patients are for one reason or another 'unwanted' or 'rejected' by their parents. The Senate Committee on Juvenile Delinquency observes that many of these children in turn become parents whose children "repeat the parents' own childhood experience of rejection, neglect, and all too often juvenile delinquency."
5. These conditions, of course, are not confined to New York City, as is indicated by the 1955 Report of the Congressional Joint Committee on the Economic Report. This body reconstituted its subcommittee on low-income families because of its "pressing concern" for "our city slums" with their "heavy direct cost of public health measures and the control of crime" and the need "to improve the productive capacity and levels of living of our low-income families."

Its list of 44 "chronically distressed areas" includes 15 cities with 50,000 to 100,000 people, 18 with 100,000 to 500,000, and 3 with more than half a million people.

6. The Senate Committee on Juvenile Delinquency writes that "disproportionately large numbers of our delinquents do come from slum areas." It urges various means of "breaking the vicious circle," including:

Housing: "We can either spend the money today on better housing or spend more tomorrow on increased adult crime and rehabilitation of adult offenders."

Improved schools: "Because our schools are overcrowded and undermanned... they are often a contributing cause to juvenile delinquency... One of the greatest steps which the Nation can take to prevent juvenile delinquency is to embark at once upon a vigorous program to reduce the acute shortage of classroom space and the too large size of classes."

Suppression of narcotics traffic: From New York to San Diego, thousands of youthful narcotics addicts are known, and the known may be "1 in 5 or 1 in 500. Pick your figure," as a New York Police Inspector is quoted as saying. An addict spends \$20 to \$30 a day -- most of it "secured by engaging in criminal activity."

Recreation and other community services: The Senate committee has consulted scores of professional, fraternal, service, and other organizations with a view to developing coordinated programs for local communities to carry out in combatting the problem of juvenile delinquency.

Mental health services: "The emotionally disturbed child whose problems are noted early enough can often be saved from a life of crime... if treatment is promptly available." This kind of treatment costs, for each child, an average of \$20 an hour, for 50 to 100 hours, spread over a year or more.



7. Family planning services are basic to any improvement of slum conditions, according to medical, social work, psychiatric, ministerial and other professional people working in low-income sections of New York. They point to the demoralizing impact of accidental pregnancy on large families crowded into one or two-room, kerosene-heated flats, lacking privacy and adequate hygiene. They agree that a first step toward improvement of this situation is to establish family planning clinics in private hospitals and settlement houses.

The University Settlement reports remarkable upswing in family morale wherever planned parenthood services give the mother the means of protecting herself from unwanted conception. Once that fear is removed, women find new courage and resourcefulness for dealing with the needs of their families. In many cases, a positive transformation in the whole family pattern has been observed.

#### WHAT ARE THE EFFECTS ON THE SCHOOLS?

- \*1. Elementary and high school enrollment increases more than 1 million a year:

<u>1954-55</u> (August report)	35,160,000
Increase over 1953-54	1,692,000
<u>1959-60</u> (estimated)	42,818,000
Increase from 1954-55	7,658,000
Average annual increase	1,558,000

At this rate of increase the elementary-high-school enrollment in 1975 will total about 65,000,000, with proportional demands for increases in teaching staff and building, even assuming that present overcrowded conditions continued.

- \*2 Teaching staffs are seriously inadequate for elementary and high schools.

<u>1954-55</u> (October reports)	
Total required	1,221,500
Total employed (includes 80,000 not professionally qualified)	1,182,800
Present <u>absolute deficit</u>	38,700
<u>1959-60</u> (estimated)	
Additional teachers needed (at present levels of class size, regarded as higher than desirable)	220,000
Plus replacements for drop-outs	100,000

With present shortages, 700,000 pupils are on 2-shift and 3-shift days, and over 1,000,000 children ages 14-17 are not in school.

\*Based on U.S. Commissioner of Education figures.



\*3. Building facilities require large expansion.

1953-54	50,000 classrooms built
1954 (October report)	370,000 additional classrooms needed with accompanying facilities. The cost is estimated at 28 billion.

\*\*4. School spending will have to expand sharply:

1953-54 - Total national spending (includes private and parochial schools)	\$10 billion
U.S. average per child (23 states are \$2 to \$135 below this average)	\$278
1965 - (estimated 48.1 million children)	
If \$278 per child (1954 average, operating cost only)	\$13.6 billion
If \$365 per child (1954 N.Y., operating cost only)	17.1 billion
If \$400 per child (equivalent to 1954 N.Y. operating costs plus debt service for buildings)	19.2 billion

Existing deficits in school budgets result largely from difficulties in increasing tax levies, whether local, state, or federal. Can these difficulties be expected to disappear in light of the projected costs?

"The problem of its children's schools lies at the heart of a free society. None of man's public institutions has a deeper effect upon his conduct as a citizen, whether of the community, of the nation, or of the world. . . . The goal of our public schools should be to make the best in education available to every American child on completely equal terms."

-National Citizens' Commission for Public Schools

5. Colleges, too, are feeling the pinch:

	<u>1900</u>	<u>1920</u>	<u>1940</u>	<u>1950</u>
Enrollment	248,000	598,000	1,494,000	2,658,000
Expenditures (millions)	\$45.8	\$213.3	\$505.7	\$2,123.3
Spent per student	\$185	\$356	\$338	\$798
Money circulated per capita	\$27.35	\$51.36	\$59.40	\$179.03

Doubled enrollments by 1975 are widely predicted.

While per student expenditures suggest a generous increase from 1940 to 1950, this occurred in a decade when money in circulation per capita trebled. One consequence is set forth in a recent McGraw-Hill editorial, showing changes in real income before taxes for four groups, from 1940-1950:

Physicians	up 80%	Lawyers	up 10%
Industrial workers	up 48%	College faculty	down 5%

"Faculty members have, in effect, been subsidizing these institutions by their financial sacrifices," the editorial points out. "This arrangement is not only a menace to the cultural and intellectual life of the nation, it is also a menace to our national security at a time when successful national survival may well depend in a peculiar degree on the full development and utilization of our intellectual resources."

\* Based on U.S. Commissioner of Education figures.

\*\* Based on figures of National Citizens Commission for the Public Schools.



## HOW WILL EMPLOYMENT BE AFFECTED?

1. Labor force, employment, and unemployment are all increasing at accelerating rates. The average annual increase of the labor force for 1944-52 was 536,000; from 1951 to 1952 the annual increase was 594,000. (from reports of the U.S. Department of Commerce):

<u>Period</u>	<u>Employment</u>	<u>Unemployment</u>
Annual average 1951	61,005,000	1,879,000
" " 1952	61,293,000	1,673,000
" " 1953	62,213,000	1,602,000
" " 1954	61,926,000	3,230,000
January 1955	60,200,000	3,300,000
Jan.-July aver. 1955	62,002,000	2,865,714

"Nationwide employment...is rising, but the productivity of our factories is rising so much faster, thanks to technological advance, that the yearly additions to the labor market are not being absorbed," the Reporter magazine points out (4/7/55). "The Bureau of Labor Statistics testifies that...employment has not kept pace with production during the past seven years.... Electronics output in 1952 was 275 per cent higher than in 1947 but was produced by only 40% more workers."

2. Automation raises questions of new dimensions, as a few comparative figures indicate:

### Employment required for given units of production

<u>Production</u>	<u>Employment:</u>	<u>old style</u>	<u>automatic</u>
oil refinery		800	12
radio assembly		200	2
brass ingots		20	2
electric power		100	28

Drilling oil holes in crankshaft of Ford engines formerly required 39 men and 29 machines, new plant uses 9 men to attend a continuous-flow operation.

"The human and social implications for a society whose labour force is increasing by about half a million a year are vast and disturbing," the London Economist says (February 1955). "Already it is known that full automation in the automobile industry would mean that 200,000 men could produce more than the million United Automobile Workers now employed."

3. Thus far automation has come gradually enough to permit individual industries to re-train and absorb displaced men. If the rate of adoption accelerates this will become more difficult. "The developmental lag between pure science and engineering application has been progressively shortened," says Norbert Wiener, professor of mathematics at Massachusetts Institute of Technology and leading theoretician of automation. Note lags:

steam engine	100 years	internal combustion	30 years
electricity	50 years	vacuum tube	15 years

Sales of automatic control devices in 1954 were ten times as large as in the 30's. Wiener estimates "it will take 10 to 20 years for the new tools to come into their own."



4. There is little need for unskilled, or even semi-skilled labor under automation: even floor-sweeping tends to become automatic. Workers maintaining and attending the new machines require various levels of engineering skills. Where will uneducated workers go?

The circular nature of these problems demands attention. Unskilled or semi-skilled labor is generally drawn from less-educated groups. It is widely observed that the quality of educational facilities tends to be lower in areas where family incomes are lower. Further, it is among these less-advantaged groups that the most children are born. Where are these "mass children," with minimal opportunities for acquiring the skills and knowledge involved in automation's "upgrading of labor," to find jobs? Without jobs, how are they to buy the fruits of increasing production? Can we afford to leave half or even one-third (see page 5) of our children outside the market for expanding production?

5. The Joint Committee on the President's Economic Report for 1955 points out that "the reduction of unemployment is not commensurate with the recovery in production." It calls attention to the absence of discussion, in the President's report, of the impact of automation and urges careful study of the "problem of adapting our economy to, and meeting the frictional unemployment problems inherent in, the automation movement."
6. "Let us remember that the automatic machine," writes Wiener in "The Human Use of Human Beings," "is the precise economic equivalent of slave labor. Any labor which competes with slave labor must accept the economic conditions of slave labor.... Thus the new industrial revolution is a two-edged sword. It may be used for the benefit of humanity... (or) it may also be used to destroy humanity, and if it is not used intelligently it can go very far in that direction."

Can employment grow fast enough to keep up with our growing labor force?

#### WHAT RESOURCE BASE IS AVAILABLE TO SUPPORT THE PROJECTED POPULATION INCREASE?

(This discussion is based on the "Paley Report" of the President's Materials Policy Commission, 1952, from which quoted sections are taken.)

1. "The United States' appetite for materials is Gargantuan and, so far, insatiable.... By 1950 -- in comparison with the year 1900 -- we were taking from the earth:

Two and one-half times more bituminous coal.  
Three times more copper.  
Three and one-half times more iron ore.  
Four times more zinc.  
Twenty-six times more natural gas.  
Thirty times more crude oil.

"...Too many of us blankly forget to look back to the mine, the land, the forest; the resources upon which we absolutely depend."



2. "In area after area the same pattern...soaring demands, shrinking resources, the consequent pressure toward rising real costs, the risk of wartime shortages, the ultimate threat of an arrest or decline in the standard of living."
  - a) In 1900 we exported 15 per cent of our production of materials  
(other than food and gold.)
  - b) By 1950 we consumed 9 per cent more than we produced of iron,  
copper, etc.
  - c) By 1957 we can expect to consume 20 per cent more than we produce.  
(all values based on 1935-39 dollars.)
3. As resources diminish, costs increase. "If, for example, the supply and quality of copper resources decline, more labor and capital are required to secure a pound of copper." The process is reflected in selected price increases from 1940 to 1950:

General wholesale prices	105	per cent increase
Zinc	119	
Petroleum	142	
Farm products	152	
Lead	157	
Lumber	218	

4. Industrial water supply "is increasingly inadequate against rising demand" and is costing millions for treatment that was formerly not required.
5. Despite enormously increasing use of power, it seems probable that atomic energy can be expected to supplement existing sources of supply.
6. "Most Americans have been nurtured on the romantic notion that technology will always come to the rescue with a new miracle when the need arises." But while technology increases efficiency in the use of materials, it also greatly increases "the total drain upon the resources from which they come. Advances in our civilian economy...can be turned into disasters by carelessness in assuring the continuity of supplies."

The intensity of the problem arises from:

increasing U.S. demands and diminishing resources,

a similar situation in Europe, and

rising demands in former colonial areas now striving for industrialization.



## WHAT BEARING HAS THIS GROWTH ON OUR RELATIONS WITH OTHER COUNTRIES?

World tensions cannot be separated from increasingly intense competition for materials. And the condition is circular; as tensions increase, our demands for raw materials for defense also increase.

1. At the United Nations Population Conference in Rome last year, the Reverend Father S. de Lestapis, S.J., a representative of the Vatican, pointed out the "inequality in the distribution of available supplies," showing that "on the present basis of distribution" the U.S. with about 9.5% of the world's population in 1980 "instead of consuming, as at present, 50% of the raw materials produced in the entire world, would be consuming 83%."

He further pointed out that "the problem of plenty...presents itself in varying forms according to whether a country falls in the category of nations economically underdeveloped, or in that of nations technically well-equipped.... Under today's conditions the advantage lies with those nations with the technical and economic development characterizing the U.S. Nevertheless...the advances of the dominant economies, being far from automatically and necessarily beneficial to the dominated economies, (our emphasis) it is not without peril, even for those technically equipped and developed nations, to allow their populations to sink into an attitude of unwarranted well-being."

2. The French demographer, Frederic Tabah (now with U.N. Population Division), in the French quarterly Population (October, 1953) writes:

"There is reason to expect that the American demand on world markets will increase. But the development of retarded countries requires a profound modification in the world pattern of raw material consumption in order to benefit these countries.... Financial calculations, especially in the field of investments, lose all meaning if they are not correlated with the realities of natural resources. If the underdeveloped countries cannot greatly increase their use of raw materials their future is extremely uncertain. As the raw materials market becomes more competitive, the United States will possess a crushing advantage. Only an enormous increase of production for the benefit of retarded countries (our emphasis) will permit them to get out of their rut."



3. S. Chandrasekhar, well-known Indian demographer, in his book "Hungry People and Empty Lands," expresses a point of view frequently found among intellectuals of India:

"Just as aggression anywhere in the world is a threat to peace everywhere in the world, so poverty anywhere is a threat to prosperity everywhere. Nor can we afford any more to have hungry mouths begging for food in one part of the world and agricultural surpluses begging for markets in another.... Once the living conditions of these millions of people are improved, the economic security and prosperity of the whole world can be assured. The tremendous task of achieving this end rests squarely on America and Western Europe... Europe and America, therefore, even if very considerable sacrifices are involved, will if they are wise, devote themselves to the economic welfare of populations that are not white."

4. In a recent letter to the London Times, Lord Simon of Wythenshawe writes:

"...The U.S. is consuming the world's reserves of minerals and fuels at an almost terrifying rate." Quoting the Paley Report on future consumption, he concludes: "The time will come when the underdeveloped countries will require on a far larger scale than at present fuels and minerals.... If the U.S. and other Western countries continue depleting world reserves at an ever-increasing rate, the prospects of industrial development by the underdeveloped countries will be black in the extreme...."

"Is the West ethically justified in consuming world reserves at this rate? Ought we not to be content with what we are already doing, at least to the extent of slowing down or stopping altogether the increase in our population?"

Lord Simon recently raised the same question in the House of Lords, and the ensuing discussion commanded considerable newspaper attention.

Prepared by  
The Dickinson Research Memorial  
Planned Parenthood Federation of America, Inc.  
501 Madison Avenue, New York 22, N.Y.

Margaret Snyder, Executive Secretary  
September, 1955



February 25, 1957

Memo of Conversation on 2/20/57 with Dr. John M. Weir  
of the Rockefeller Foundation.

Weir had read the Memorandum with care and consulted with his associate, Dr. Robert S. Morison.

His attitude was very negative and he was not impressed with the abstract of scientists' replies. Said the "set up" was of course one the scientists would like but that he and Morison did not favor it.

Following are notes I took on Weir's observations:

Dr. Little's laboratory at Bar Harbor seems to him a somewhat analogous venture. That was built around one man and went downhill when he left. (I pointed out that the Research Institute would be built around several.)

Weir feels that "isolating" scientists is not productive. Cited the fact that the Rockefeller Institute is now going in for teaching, starting with post-graduate courses.

He believes the National Institutes of Health have some pretty first class men and suggested they could do the job of our proposed Institutes.

Thinks that our Memorandum is wrong in not giving credit to the National Research Council on Sex Problems for doing fundamental investigation in human reproduction. He does not feel that the problem can be solved in the laboratory. He added that a lot of work is being done in scattered labs with funds available. He indicated that an exchange of information exists.

He went on to state that effective field studies are being carried on in the Punjab, Porto Rico, etc.

Going on to find fault with the Memorandum, he said that in the field of human reproduction and in the absence of a war imperative, he did not believe much in the influence of "the outsider". Nor did he place much faith in the coordination contemplated in the Szilard-Doering plan.

He disagreed with the example of work in radar given in the Memorandum. Said that M.I.T. simply applied principles in radar previously discovered in England.

As to fat metabolism, he maintained that research is now coordinated. He added that the tobacco industry is working hard to solve the problem of filtering tobacco so as to reduce its harmfulness.

In connection with financing of our plan, he maintained that \$10,000,000 would not even start the program, much less support it. Believes that \$50,000,000 would be minimum.

Elaborating on the above, he observed that the Regular Staff Members would need \$500,000 a year rather than \$50,000 to attack any fundamental problem of



February 25, 1957

research. The day of "the single research worker" has gone, he said.

As to the building, he did not think we could begin to build and equip it for \$3,000,000. The Rockefeller Institute has raised \$100,000,000 and maintain 10 - 12 senior research workers.

The cheery session ended by Weir politely refusing to consider putting up a few thousand dollars for our preliminary expenses, including paying for a conference of scientists. He said that by financing a meeting, he would have a hand in the possible creation of "another monster" that eventually would be on the doorstep of the Rockefellers.

Cass Canfield

CC:clp



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THE ENRICO FERMI INSTITUTE  
FOR NUCLEAR STUDIES

October 2, 1957

MEMORANDUM

From: Leo Szilard  
To: Mr. Cass Canfield  
Dr. William Doering  
Dr. Harrison Brown  
Dr. Fritz Lippmann  
Dr. H. J. Muller  
Dr. Linus Pauling

I am leaving for Europe on October 3rd, and expect to be back in about four to six weeks. At that time I hope to get together with Dr. Doering and Mr. Canfield, and review our chances of raising funds within the confines of the United States for the Research Institute which we have been discussing. It is conceivable that we might have to decide to abandon further efforts to raise these funds in the United States.

Since this might be our conclusion, I wish to raise an issue with you at this time, in order to give you time to think about it so that I may have the benefit of your thinking upon my return from Europe. This issue is as follows:

In general, it is customary to think in connection with the problems of underdeveloped countries in terms of attempting to solve such problems with the help of American funds and "native" manpower. Oddly enough, in connection with the problem of birth control, the appropriate solution might be exactly the opposite. America has the scientific manpower but for various reasons American funds appear to be unavailable for an adequate research effort devoted to this problem. In these circumstances I feel tempted to put to you the following proposal:

Let us set up an endowment fund in some neutral country, perhaps in Switzerland, perhaps elsewhere, of about 20-25 million dollars, put together out of contributions solicited from the Chinese, the Russian and Indian governments. The Associate Members of the Institute may serve as the Trustees of this fund.



The income should be used to operate a Research Institute located in England -- either in London or in Cambridge -- which would draw its permanent scientific staff from England and America. The Research Institute would serve three purposes: 1) It would engage in basic biological work with particular emphasis on molecular biology. 2) It would pursue practical application in the general domain of public health, with particular emphasis on the problem of birth control. 3) It would train scientists drawn from China, Russia and India, as well as from other scientifically underdeveloped countries in research in modern biology.

In submitting this proposal to India, one would have to present the plan to Nehru. Prior to doing so, it might be advisable to discuss the matter with Krishna Menon on the occasion of one of his visits to New York. In the case of Russia, one would probably have to present the plan to Krushchev, but prior to this it might be advisable to take up the matter with the Russian Academy of Sciences. In the case of China one would want to present the plan to Chou-En-Lai, and I do not know as yet what intermediate step would be most appropriate prior to such presentation.

One could not expect from India more than a token payment and the main financing would have to come from Russia and China. Russia has greater resources than China but, on the other hand, the problem is more important for China and the importance of this problem is now clearly recognized by the Chinese government.

I think it would be necessary for us to say why it is not possible to raise the funds in the United States in spite of the fact that the problem is clearly recognized and in spite of our professed interest in the problems of underdeveloped countries. My own answer to this is as follows: (1) Our professed interest in underdeveloped countries is based on a short-range political interest or on our desire to alleviate suffering on an emergency basis. In either case our interest does not go very deep. (2) Those who control the funds of the large private foundations are almost as conservative in their disbursement -- sometimes they are more conservative -- than the agencies of the U.S. Government. (3) There is an almost imperceptible, yet appreciable, Catholic influence that seems to play in this case the role of the straw that breaks the camel's back.



April 20, 1958.

MEMORANDUM

From: Leo Szilard

To: Mr. Cass Canfield  
Dr. William Doering  
Dr. Harrison Brown  
Dr. Fritz Lippmann  
Dr. H. J. Muller  
Dr. Linus Pauling

I have been in touch with you prior to this time about the need to create a research institute devoted to modern basic biological research, and to its application to world problems of public health. Among the latter is, above all, the solution of the problem of finding a physiological method of birth control that is adapted to the needs of the less industrialised countries.

A memorandum on this subject, addressed to Mr. Cass Canfield and written by Doering and me - as well as an appendix that I wrote to this memorandum - has been sent to you on a previous occasion.

The problem of birth control is no longer a major problem either for the U.S., or for Russia. Since it is, however, the official policy of both these nations to promote the welfare of underdeveloped countries, and since it is manifest that the standard of living of most of the underdeveloped areas cannot be raised through economic help alone, unless something is also done to enable families to control their size, I am now about to put forward a proposal for America and Russia to cooperate in the creation of a Research Institute of the general kind described in the memorandum and appendix mentioned above. Because this memorandum was written on the assumption that the Research Institute would be set up in the United States with American funds alone, it would now have to be revised.

Such a Research Institute could serve a double purpose: In addition to modern basic biological research, and work on world problems of public



health - such as the problem of birth control - the institute could also, by accepting visiting scientists from all nations, accelerate the development of modern biology in countries all over the world.

It is conceivable that such an institute could be set up as an inter-governmental organization. If we attempted to do this, we would perhaps have a better chance, ultimately, to obtain very large funds, but it is likely that the setting up of such an organization would take a very long time. For this reason, I, personally, am unwilling to make an attempt aimed at the setting up of an inter-governmental organization.

I am prepared, however, to try to assemble a group of outstanding Russian, American and British scientists, who would be prepared to act as trustees for a fund - if such a fund can be obtained mainly from Russia, America and perhaps England - and thus to assume the responsibility for setting up a Research Institute.

One might think in terms of a trust fund of, perhaps, 25 million dollars, deposited in a neutral country (perhaps Switzerland) and perhaps setting up the Research Institute in England, provided that the Home Office is able to give a reasonable assurance that it will not bar scientists, from any nation, from working in the institute, (either as permanent employees or on a visiting basis) who are recommended by the trustees.

While I was in England, I had occasion to discuss this matter with A.V. Hill, Sir Alexander Todd, the Chinese Charge d'Affaires, Dr. Huan Hsiang, and some others. Encouraged by their response, I have decided to take up the matter now with Academician Topchiev, Secretary of the Moscow Academy of Sciences, ~~whom I expect to see in Quebec next week.~~

Certain difficulties of this scheme are pointed out in a letter which I received from A.V. Hill, of which you will find a copy attached. You may wish to ponder these difficulties; I, personally, believe that they can



be met without going to too much trouble.

I, personally, believe that the time has come for Russian-American cooperation on major world problems and, particularly, those problems which can be more easily solved through American-Russian cooperation than by either Russia or America alone. The problem of modern basic biological research, and its application to birth control, is, I believe, a problem of this nature, because it requires both funds and scientific ability of a kind which neither America, nor Russia, is likely to make available if left to themselves.

As you probably remember, President Eisenhower has suggested Russian-American cooperation for the purpose of ridding the world of diseases like malaria. It seems to me, however, that either Russia, or America, could accomplish this just as well single handed, if they were to put their mind to it.

I should appreciate receiving your comment as to the desirability of the solution outlined above. I am not soliciting any comments on what you may think the chances may be of obtaining the required funds, without unacceptable strings attached, on the basis outlined above, since I propose to adopt in this respect the experimental approach.



Dr. George Beadle  
Division of Biology  
The California Institute of Technology  
Pasadena, California

Dr. Richard P. Feynman  
Department of Physics  
California Institute of Technology  
Pasadena 4, California

Dr. Harrison Brown  
Department of Geology  
California Institute of Technology  
Pasadena, California

Dr. Linus C. Pauling  
Division of Chemistry and Chemical Engineering  
California Institute of Technology  
Pasadena, California

Dr. Edward Teller  
Department of Physics  
The University of California  
Berkeley, California

Dr. Tracy M. Sonneborn  
Department of Zoology  
University of Indiana  
Bloomington, Indiana

Dr. H. J. Muller  
Department of Zoology  
University of Indiana  
Bloomington, Indiana

Dr. Fritz A. Lipmann  
Biochemical Research Laboratory, Harvard Medical School  
Massachusetts General Hospital  
Boston 14, Massachusetts

Dr. Harold C. Urey  
The Clarendon Laboratory  
Oxford, England

Dr. Jonas Salk  
Department of Preventive Medicine  
The University of Pittsburgh School of Medicine  
Pittsburgh, Pennsylvania





DAN WEINER

#### SID RICHARDSON

The wealthiest man in America, with a fortune founded on oil and hard work, Richardson at 65 is still a bachelor, lives at his Texas club.



WIDE WORLD

#### JOHN D. ROCKEFELLER III

Oldest grandson of old J. D., founder of fortune, young Rockefeller devotes time to restoration of Colonial Williamsburg, other projects.



WIDE WORLD

#### HENRY FORD II

Young Ford's methods differ from those of his grandfather, but he had the backing of the old pioneer when he took over the company. Result: revolution.

# Who are America's 10 Richest

*If you could do anything you wanted to do, within the bounds of limitless wealth—*

*what would you do, how would you live? Build castles? Help others?*

*Dance from morn till night? America's millionaires may be able to advise you.*

By MARGARET PARTON

“After the first hundred million, what the heck?” asked Clint Murchison, discussing his friend and fellow Texan, Sid Richardson. Mr. Murchison is supposed to have \$300 million; Mr. Richardson, \$700 million. But both know, as do most financial observers, that neither a multimillionaire nor his wife can ever tell exactly how much money they have—after the first hundred million, that is. Holdings are too diffuse, profits too variable to make an assessment of great wealth anything more than an estimate.

Lists of America's richest men change from year to year, and sometimes from month to month. Recently H. L. Hunt and Hugh Roy Cullen, both Texas oilmen, were always included. Hunt, however, has suffered some reverses (dropping him into the dirt-poor, or below-\$200-million class) and Cullen has given away 90 per cent of an estimated \$350-million fortune to various educational, religious, medical and charitable groups. This leaves him with a mere \$35 million, and puts him way out of the running.

Who, according to the best available evidence, are today's ten wealthiest men?

Leading the list is bluff Texas bachelor Sid W. Richardson, with his estimated \$700 million. In second place comes that amazing old Florida operator, Arthur Vining Davis, with around \$450 million. In third place, with \$400 million, is Henry Ford II, president of the Ford Motor Company. Vying for fourth place, with \$350 million each, are Joseph Newton Pew, Jr., chairman of the Sun Oil Company of Pennsylvania, and Howard Hughes, aviator, movie maker, perennial squire of beautiful girls, and president of the Hughes Tool Company of Houston, Texas. Next comes Clint Murchison, with \$300 million, give or take a few millions. After him is modest Paul Mellon, inheritor of a Pittsburgh steel fortune which now seems to amount to around \$250 million. Also competing for Mellon's place, with \$250 million

each, are the high-living St. Louis brewer, August Busch, owner of the St. Louis Cardinals, and John D. Rockefeller III. Trailing the rest, with a paltry \$200 million, is Robert Winship Woodruff, of Georgia, Coca-Cola manufacturer and golfing companion of President Eisenhower.

At first glance these men seem to have little in common. Some inherited their wealth, others made it themselves. Men like Rockefeller and Mellon spend a great deal of time giving it away. Richardson, who at 65 has not yet had time for extensive philanthropy, says, “I'll still be tradin' when they bury me.” And Davis, at 89, snaps at reporters, “I work to make money!”

Some of them live in palatial mansions, surrounded with cooks, butlers and gardeners. Others prefer to live in hotels or clubs. Some are women chasers, others have been devotedly married for many years. Some are gentle parents, others are harsh. Some speak in cultivated voices, and find enjoyment in music, art and literature. Others take pride in crudity, and happily let the arts get along without them.

Wide as are these differences, there are some attributes which they share. Few of them, for instance, seem to have had a serious illness—by and large, they are characterized by raw good health. Most of them have what has been called “millionaire vitality”; they hunt, fish, ride, play tennis and golf. (Busch likes nothing better than a warm-up with his own baseball team.) Most of them can work (or have worked in the past) for three days and nights on a problem, without sleeping. Almost all of them are early risers. Woodruff hauls his guests out of bed at dawn every morning to go hunting, and thinks nothing of it.

Most of them are “loners.” Without advice, they may gamble millions on a risky financial venture, willing to take victory or defeat on their own. They



JERRY COOKE—PIX

#### JOSEPH PEW

A famous name in Phila. society; Pew ducks publicity, plays politics.

make up their own minds, and often their decisions lead them on dizzy paths which more timid citizens would not dare to tread. They tend to do without secretaries or elaborate offices, to carry their real business in their hats. (In 1929 the New York Herald Tribune reported that young Rockefeller had visited King Alfonso of Spain, accompanied by “a secretary and a servant.” The paper was very quickly informed by a family spokesman that Rockefeller “has never had a secretary or servant.” His habits may have changed, but the tendency to keep important matters under his \$50 hat remains.)

Every one of them has been described as having “an ability to size up men.” All of them are said to possess “vision.” Richardson, for instance, kept on prospecting for oil in an area where engineers said there was none. He was right. Woodruff lost money when he sent Cokes to GI's all over the world during World War II—but he correctly foresaw the huge postwar profits which would result when the soft drink's name and fame were carried around the world. Mellon, perhaps the most visionary of all, contributes heavily to preservation of America's trees and wildlife.

Most of them are likable men, admired by their associates and subordinates.

All of them, it might be noted, differ in a number of ways from the Robber Barons who flourished at

Reference to Rockefeller on page 179



the only trouble was there were four men in her life.

It was along about ten in the morning when Perly drove into the yard. He wanted to know if I'd like to go to town with him. I didn't see why not. We only get into town every so often. Sometimes when the weather's bad we don't even go then.

So we started off. The car bounced over a rock at the edge of the drive and Perly swore.

"I'm going to take that rock out of there," I told him, "any day now."

"I love the rocks and rills," Perly said. "Looks like that's about all I have left. Elvira's made up her mind to marry the banker. I'm about to lose my baby."

Well, Elvira stood a good five foot seven and weighed around 125 or 130. She was a real snappy-looking girl with red hair, but no baby to my mind—anyhow not to get sentimental about it. Of course there was just the two of them and she'd been keeping house for him since she was fourteen or thereabouts. Still, you don't expect a girl to stay around the house forever. She wants to get out and have a family, even if she's got to marry a banker.

"So she's turned Anse down for good," I said.

"I gave her every argument I could think of," Perly said, "but it wasn't any good. 'You know anybody else with three hundred and sixty acres of prime farming land?' I asked her. No, she didn't and didn't want to."

"Anse has got a good farm," I said, "and no mistake. There's pheasant back toward his west boundary like nowheres else in the county, and squirrel —"

"Yes," he said, "and rabbits and quail. A man could live pretty high on that place and never plant a seed. But Elvira has got this bullheaded streak to her."

"You take fish," I said. "There's a place where his back pasture slopes down to the river—I've seen bass there —"

"You don't have to tell me. Tell Elvira."

There was a fellow driving an Essex in front of us and Perly gunned the engine to pass him. He couldn't make it so he honked the horn a couple of times and pulled back over. "The trouble with Elvira is she hasn't got any notion of marrying a man that wears boots all the time. Oh no. She wants a man with some refinement to him and culture. The finest pack of hounds in the county be hanged."

"This fellow with the culture," I said, "no doubt that would be this Albert at the bank."

"No doubt," he said. "I told Elvira—I don't care if he carries a book of Longfellow in his pocket—I don't care if he can whistle

every song that Carrie Jacobs Bond ever wrote —" Perly stopped and snorted.

"What did she say?"

"I don't remember," Perly said. "All I know is no daughter has any business talking up to her father like that. I had a good notion to take a stick to her, only you know what my rheumatism is like in wet weather."

Well, we *had* been getting a lot of rain. I didn't say anything until we got to the grade crossing. There was some cars lined up waiting for a freight train to go by. Perly stopped about twenty, thirty feet behind the last car. Pretty quick a car pulled up behind us and gave a blast on the horn. Perly picked up a good-sized wrench from the floor. Then he got out and slammed the door.

"Hold on there," I said. "There was something I wanted to ask you."

Perly stood there in the road, tucking in his shirt all around with the wrench in his hand. "You can ask me in a minute." He hunched his shoulders and started toward the rear of the car. I turned around to watch. The fellow in back of us rolled up his window in a hurry. His face had kind of an odd color, either that or he had a green windshield. I couldn't see Perly. In a minute he came back and tossed the wrench on the floor.

"Thought the taillight might be loose," he said. "Take a look out the back window." He started up and drove forward eight or ten feet and slammed on the brakes. The car in back followed right along and slammed on his brakes, and the car in back of him did the same and so on down the line. Six or eight of them.

"Let's try it again," Perly said, and he did and they all did.

"I could lead them across the country that way," he said, "coast to coast." He appeared to be feeling more cheerful.

After the train passed we headed into town. Perly gave a sigh. "An ungrateful child is sharper than a adder's tongue," he said. "Longfellow tells us that. Now that I think of it, her mother was the same way."

Well, Elvira did have a sharp tongue. "I don't see that it matters who she marries," I told him, "you always have hunted and fished Anse's land and he never ran you off before."

"No, and Elvira wasn't married to some penny stacker before neither. I don't mean to say Anse would run me off even now, but if I was his father-in-law I could hunt and fish there and I could run *other* people off."

"You've been doing that right along," I said.

"That's so," he said, "but if he was my son-in-law I'd have the authority for it. Besides, he'd more than likely let me borrow his hounds from time to time."

"He's got some fine ones," I said. "I wouldn't mind having that blue-tick of his."

"What blue-tick?"

"You're headed for the wrong side of that culvert," I said. "Why, the blue-tick hound he got from Kentucky last week. Paid two hundred dollars for her, they tell me—some kind of a champion, I guess."

"Well now, if that don't take the prize for a ungrateful daughter." Some kid on a bicycle started to pass us. Perly shoved down on the gas pedal and that kid really had to pump to get by us. "Going to marry a banker, is she?" Perly said.

"Well, maybe a father still has some rights." He turned into Main Street and parked just down from the bank. The ladies' store where Elvira worked part time was a couple of doors the other way.

CONTINUED ON PAGE 113

to town

By WILL STANTON





OLLIE ATKINS—SATURDAY EVENING POST

**ROBERT W. WOODRUFF**

Woodruff, whose fortune is based on soft drinks, lives on Southern plantation, with gentle wife "Miss Nell." Sometimes golfs with President Eisenhower.



BILL SHROUT—SATURDAY EVENING POST

**AUGUST BUSCH**

At 58, energetic Busch finds time for a full life: his young Swiss wife, big family reunions, horses, kennels, song fests, his brewery.



WIDE WORLD

**PAUL MELLON**

Mellon, 48, uses his wealth to support schools, colleges, museums. Interested in conservation, also raises winning horses.

# Men?



WIDE WORLD

**ARTHUR VINING DAVIS**

Amazing Davis began new career at 81, now owns large part of Florida, baffles everyone with his energy.



BLACK STAR

DAN WEINER

**CLINT MURCHISON**

Dynamic Texan, Murchison retired at 32; bored with life, soon returned to make more millions. But he always finds time for horses.

**HOWARD HUGHES**

Restless Hughes, 51, tests own planes, makes movies, escorts beautiful girls, wanders alone.

the end of the nineteenth century. Parties may be lavish, but they are not ostentatious or eccentric; today no one would seat a chimpanzee at the glittering dinner table, nor ask the guests to ride into the banquet room on horseback. Dedicated philanthropy has, more or less, replaced lavish display. The old moguls had yachts—today's dollar prince has a private plane or two. The older gentlemen made no secret of their mistresses; there has rarely been a breath of scandal about most of the newer generation of millionaires.

The most important link, however, seems to be family background and "atmosphere." Some of the men come from families of famous name and wealth, others are said to be "self-made." Yet in a sense, none of them is self-made, for in the background of every life stands a father, pushing his son along. Every one of them had a good heritage in terms of parental strength, foresight and determination. Nine

of the ten were personally trained or taught by their fathers, when they first entered the world of real money.

Take Sid Richardson, for instance—America's richest man. (If you stacked his \$700 million in silver dollars they would make a tower roughly 276 times higher than Mount Everest.) Sid Williams Richardson was born on April 25, 1891, in Athens, Texas, a town which boasts that fifty millionaires have come from the vicinity. Young Sid's father was the owner of a large peach orchard, and a natural tradin' man. When the boy was 12, so the story goes, his father offered to trade with him—did, and won. "That'll teach you!" his father exclaimed.

Encouraged and coached by his father, the boy went on trading; when he was 17 the father could boast that his son had made \$3500 that year from shrewd cattle trading. With this background, it is

little wonder that Richardson stuck out only a year and a half at Baylor University, telling his friends as he left that he saw no reason to spend his energy in the library when there was so much money to be made on the outside.

For four years he learned the ropes as an oil-well supply-company salesman, scout and leaseman. In 1919 he went into business on his own, finding and developing oil fields. By 1933, when he was 42, he had been a millionaire and was broke again. "But I had forty dollars and I was ready to go," he remembers. Once more he began oil prospecting, this time on credit. Two years later he was making \$12,000 a month, mostly from oil wells brought in by faith, luck and hard work in West Texas.

Today Richardson holds more oil land than several of America's major oil companies. Financially, he prefers to stick to oil, but on the side he has interests in twenty-three

CONTINUED ON PAGE 173



# The lark's on the Wing

*Like every other woman,  
she wanted more than love.*

*Miss Mary wanted romance . . .*

By STELLA BLOUNT HYMAN

*She sat still at her desk, and slowly, in spite of her unbelief,  
a tide of pure happiness flooded her whole body.  
"Why, he means me!" she thought.*



The kitchen was full of smoke from the frying fish. Mary Fields raised a window impatiently. *I wish they hadn't insisted on having fish tonight*, she thought. *The scent'll be all in my hair.*

She turned the creek perch in the long iron skillet and wrinkled her nose in distaste. Creek fish always smelled like mud. Then, going to the window, she looked out. It had been a windy, cold day, a real March day; but now the wind had fallen, and the sun's pale gold, spread out over the western field, had that elusive look of spring.

*Tomorrow'll be a pretty day*, she thought, and shivered, half in desperation, half in anticipated happiness. "I can't believe I'm going to do it," she said aloud, cooling her face in the sharp air that came in through the open window. *But I am*, she went on to herself. *What have I got to be afraid of? I'm not a child. I'm forty-five years old, and papa and mamma can't forbid me. After it's over, all they can say won't make any difference.*

She turned around and pushed the skillet to the back of the stove, opened the oven door, and looked at the little corn pones browning in the big pan. The kitchen table was already set for supper. Mary looked at the familiar red-checked tablecloth and the old blue dishes they used for every day, and her heart ached. She was terrified to find that she was homesick already.

*I mustn't think about home and papa and mamma; I must think about Jim*, she determined, standing in front of the stove and pressing her trembling hands together.

Now supper was ready. She dipped up the turnip greens and cut them up fine as her father liked them to be. She put the fish and the corn bread on the table, lifted the heavy agate coffeepot and poured the coffee, strong as lye. Then she opened the door and went through the cold, orderly dining room to the hall beyond. Her father and mother were in the living room on the other side of the house. They heard her coming and, like two eager old children, met her as she opened the door.

"Seems like supper's mighty late," said her father querulously. "Gettin' later every night."

"I had to fry fish. That takes time," said Mary, going

CONTINUED ON PAGE 123



WHO ARE AMERICA'S TEN RICHEST MEN?

CONTINUED FROM PAGE 73

other companies, dealing in everything from candy to chemicals. He has vast gas holdings, cattle ranches, a chain of drugstores. In 1954 he teamed up with his lifelong friend, Clint Murchison, to help Robert R. Young get control of the New York Central Railway. This nicked him for \$20 million, but the investment seemed sound; and anyway, Murchison wanted him to.

Richardson, a large, barrel-bodied man with thinning brown hair, a rolling walk and a Texas drawl, has been a bachelor all his life. Whenever he is teased about this, which is often, he remarks amiably, "Why, I been thinkin' about a wife for forty years now." Women have been chasing him in vain for decades. "They're all wantin' a landin' field, but mine's fogged in," is his permanent comment.

Evidently he likes bachelor life—and as one less affluent observer commented: "When you're *that* rich, you don't need a helpmeet."

For thirty-five years Richardson has lived in hotels or clubs, and for the last sixteen years he has occupied the same two rooms in the Fort Worth Club. He is partial to the cowboy-Indian-soldier paintings of the Old West by Charles Russell and Frederic Remington, and his walls are decorated with their art. The center of his bedroom is occupied by an island of suitcases, each packed with clothes proper to hot, medium or cold climate. Whenever he wants to go anywhere in a hurry, he throws three clean shirts into the proper suitcase, and he's off—usually in one of the two fifteen-passenger DC-3 planes which he owns.

Richardson's day begins at 6:30 A.M., with a telephone call from Murchison in Dallas. Leaning back against the rumpled pillows, he talks million-dollar deals, and lights the first cigarette of the day. He smokes five packs a day, but only an inch of each cigarette, and he never inhales. Breakfast at 8:30 is a raw egg in orange juice. By 10 A.M. he is in his office downtown. He prefers doing business by telephone rather than by secretary. And he would rather listen than talk. "You ain't learnin' nothin' when you're talkin'" is one of his favorite maxims.

January and February Richardson spends with friends in Southern California. Midsummer finds him with the Murchison family in

La Jolla, California, where he spends every day at the Del Mar Race Track. Richardson and Murchison own the track jointly, and claim they devote some of its profits to an organization called "Boys, Inc." aimed at combating juvenile delinquency. Richardson's other philanthropies, if any, have not been publicized, although he is said to be tight with money in little ways and generous in big. He once, however, gave a coming-out party for his niece Nancy Ann Smith, in which 10,000 bunches of grapes were used in the decorations. One of his gifts to friends is a gold money clip bearing an oil derrick outlined in diamonds above a diamond-studded initial.

November and December, Richardson lives and hunts on St. Joseph Island in the Gulf of Mexico, enjoying his glass-walled home with its furniture handmade from driftwood and its deliberate lack of telephones. The island, which he owns, has 32,000 acres stocked with cattle, and a wild area stocked with deer, quail, duck, turkey and geese.

In 1937 Mr. Richardson entertained the late President Franklin D. Roosevelt on the island and in 1949 he was host to Dwight Eisenhower. Both Murchison and Richardson have claimed to be Democrats, but both supported Eisenhower—in 1952 Richardson went to Paris to urge the then NATO military commander to run for President. Since the election he has dined frequently at the White House, but he does not disclose the subject of the conversations.

Another favorite retreat is the Koon Kreek Club, located in a millionaire-exclusive wilderness near Athens, Texas. There the fellow magnates can lie around in old sports clothes, fishing, playing poker and enjoying a rugged masculine life, far from all those eager women.

Both Richardson and Murchison seem to have a lot of fun together, hunting, fishing or following the horses. "They are both nice guys," one Dallas oilman remarked. "They have the simplest, most innocent desire in the world—to make money. All they want is more."

So, apparently, does Arthur Vining Davis. At 81 this spry gentleman retired from active participation in the affairs of the Aluminum Company of America, and began building a new career and a new fortune in Florida. So suc-

cessful have his efforts been that now, close to 90, he can count a \$450 million pile and call himself (according to most estimates) America's second-richest man. He is still going strong, buying up properties and companies, although no one knows quite why. Mr. Davis does not like publicity, and has rarely been interviewed.

Property owning is evidently in his blood, for his ancestors held considerable property in New England in the seventeenth and eighteenth centuries. "His forebears were so strictly Anglo-Saxon and New England," his sister once said, "that you may well introduce him as a 'Yankee' pure and simple, and be done with it."

Born in Sharon, Massachusetts, on May 30, 1867, Davis was the son of a Congregationalist minister. His father saw to it that the boy was trained in the habits of New England thrift and hard work, and gave him a good education; he attended Roxbury Latin school in Boston and was graduated from Amherst College in 1888, a Phi Beta Kappa.

After that, he was on his own, and he made the most of expanding America. In Pittsburgh that same year he joined an industrial firm which a few years later was to begin turning out America's first commercial aluminum. At \$14 a week, wearing overalls, he opened packing cases, kept books, answered letters and supervised a thirteen-hour shift—seven days a week. (When aluminum went into production, Davis gave the first stew pan ever made to his mother. She used it for many years in her cooking—and the pan is still preserved.) In 1891 he became general manager, and during the next half century he pioneered Alcoa into what is now one of the world's richest corporations. He is still chairman of the board, a director of the Mellon National Bank and Trust Company and half a dozen others.

His real life, however, is in Florida, although he will fly from time to time to New York or Pittsburgh to take care of financial tag ends involving only a few millions or so. But the acquisition of property and business, particularly in Dade County—which means Miami and its suburbs—is his current absorption. He owns one eighth of the county, and many of its banks, hotels and skyscrapers. "Arthur Vining Davis is a large body of money surrounded by Dade County," quipped one observer.

In a forty-five-day period last year Mr. Davis bought the lavish Boca Raton Club and its lands, an airline, a downtown office building, a large cattle ranch, and 200,000 acres of land on the Isle of Pines, 70 miles south of Cuba. During this period he also announced plans for a \$20,000,000 shopping center, and leased an ocean-front tract for \$2 million, where he said he planned to build a million-dollar hotel. His purchases have averaged \$250,000 a day—and he has sold nothing except a tomato farm which was losing money.

What this is all for, few people know. Davis is said to be "interested" in various civic organizations, including hospitals and schools—but whether some foundation will get the fortune remains for the future to reveal. His first wife died in 1908; his second, in 1933. Still a widower, he sees little of his closest relatives, an older brother and a stepdaughter. A faint but enigmatic clue comes from a banker with whom he has been associated: "Mr. Davis has planned everything for the next one hundred years."

Just over five feet tall, white-haired and peppery, Davis at 89 is still a dynamo. Up early every day, he talks business with aides before breakfast, whips into Miami, whirls through business deals at his office, and skips lunch, as he has for years. He spends the afternoon inspecting newly acquired or contemplated enterprises, and often works late at night. He expects the same devotion to work—that is, to making money—on the part of his subordinates. A while ago Mr. Davis spotted an idle workman at one of his projects. "Are you supposed to be working for me?" he asked. "Yes, sir," said the man. "Well, you aren't," snapped Davis. "You aren't sweating!"

CONTINUED ON PAGE 175

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"All right, what's all this infernal quiet about?"

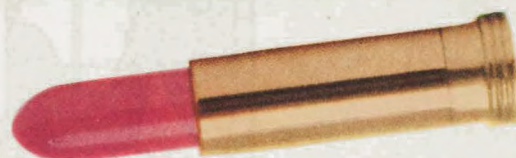




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all day long because it is Sheer Velvet lipstick by Dorothy Gray.*

*This is the rose! Yum! \$1.25.*

For beauty the modern way **Dorothy Gray**



CONTINUED FROM PAGE 173

Mr. Davis shows few signs of age. His hearing is acute, and he uses eyeglasses only for reading. He walks slowly, but won't accept a helping hand. He dresses nattily, and prefers to wear a vest. He likes to wear his straw hat straight on, with the brim turned up all the way around.

If Davis can be said to have a hobby, it is horticulture. His interest in tropical plant life is intense, and characteristically he has developed this interest in the form of one of the world's largest orchid farms, which he owns. He also seems fond of club life, for he belongs to 27: 7 in Pennsylvania, 12 in New York, 2 in the Bahama Islands and 6 in Miami. Many of these are devoted to sports, in which he has always been interested. He is a founder and former president of the exclusive Porcupine Club of Nassau, and among the ten top millionaires the only active yachtsman.

Davis has several homes, some of which he rarely sees but continues to maintain. He has an apartment at his own Boca Raton Club, and another on Fifth Avenue in New York. He has a fishing camp in the Florida keys, which he rarely visits. He also has a handsome new dwelling on his 30,000 acre property on the island of Eleuthera in the Bahamas. There he has opened up a harbor, built an airstrip, an eighteen-hole golf course and thirty guest-houses. All this, he hopes, will become a tropical paradise retreat for "rich millionaires."

His principal residence, however, is a 50,000-acre estate near Coral Gables, which he has busily torn apart and put together again since he bought it several years ago. The main house is pale pink, Spanish style, with views of soft green lawns and subtropical trees. A deep-water channel has been dredged from Biscayne Bay, a mile away, to a yacht basin near the house. A public road, too close for comfort, has been moved (at Davis' expense) to a quieter distance. An old water tower has been transformed into a miniature campanile—Davis likes to take guests up in the specially installed elevator and show them a view of the Atlantic. Inside the house, the walls are covered with old and with modern paintings. "I don't use an art dealer, just my own bad taste," says Davis. In the kitchen wing lives Trini, a parrot Davis picked up in Trinidad thirty-five years ago. "And he was an old bird then!" he exclaims in admiration.

Davis' official hostess is Evelyn Mitchell, a young Virginian who was his part-time secretary during World War II. Miss Mitchell supervises the staff, plans the menus, sees to the care of Mr. Davis' wardrobe, and handles much of his personal mail. In the early evening, if he is not busy buying a skyscraper or an airline, they sit on the estate's sunlit patio, where Mr. Davis enjoys his favorite dry Martini, smokes a rare cigarette and talks to guests—usually young people, for Davis far prefers their company to that of his contemporaries. ("She was all right," he remarked of a 50-year-old dinner companion, "but rather elderly.")

Sometimes these evenings include a stroll about the estate, with Davis proudly pointing out the rare trees and the long vistas. Christened by a wry sense of humor, the estate is known as "Journey's End." No one ever sees it who is likely to ask Arthur Vining Davis any rude questions about why he keeps on piling up the millions at an age when most men would settle for orchid culture.

A man who has managed to ask a lot of rude questions—and answer some, too—is Henry Ford II, who with his \$400 million ranks third in the don't-need-to-ask-how-much-it-costs hierarchy. Since 1945, when he was 27, Ford has guided the destinies of the Ford Motor Company, listening in the early years to a

number of blunt questions from old-line executives and union leaders, and answering them apparently to most everyone's satisfaction. The company, which was staggering through evil days when young Ford first took over, is now doing nicely, thank you.

**B**orn in Detroit on September 4, 1917, Ford was the eldest of the four children of Edsel Ford. His grandfather, of course, was old Henry Ford, founder of the business and, in a sense, of the automotive age. From their earliest childhood the new generation of Ford boys was encouraged to play around the assembly plants, to become accustomed to the roar and grind and precision of the industry. Young Ford's first job with the plant, which came after he had decided to quit Yale in 1940, was greasing cars in the driveway garage at Dearborn. Under the careful supervision of his elders, who had made him a member of the board in 1938, he progressed through other departments, learning the hard way.

In 1941 he joined the United States Naval Reserve, and was commissioned an ensign. Two years later his father died unexpectedly; Ford returned to Detroit to work on war contracts.

Ford became executive vice-president in 1944, but he was far from happy with this high-sounding title or with the company. The

old tradition, by which he was still bound, was that the Ford Company never needed to make a profit because Henry Ford and his family, sole owners, were already rich enough. Uninterested by the worry of meeting competition, the company had fallen behind in the automobile scramble. Top executive Harry Bennett was king, and he ran the plant, some considered, on feudal lines. Relations between management and labor were, to put it mildly, not good.

In 1945 grandfather Henry resigned, and at a momentous meeting of the board young

Henry the Second was elected in his place. Some say that his mother threatened to put her personal stock on the market—an unthinkable thought—unless her son was made president. Others say that his grandfather's influence and faith were decisive. What is definite is that within minutes of his election Ford fired Harry Bennett.

In common with his fellow millionaires, Ford has the ability to pick good men for the jobs he wants them to do. He brought in Ernest R. Breech, president of Bendix Aviation Corporation, as his over-all trouble shooter; in the next ten years the two men pulled the company out of its hole, eliminated feudalism. When Ford stock first went on the open market in 1956, the move created economic history.

A leading exponent of industrial liberalism and the importance of human relations, Ford has applied his convictions to his own workers; management and labor now sit around the table and come to terms. From 1943 until 1956 he headed the \$500 million Ford Foundation created by his father and grandfather in 1936 to help "establish lasting peace throughout the world" and to "eliminate restrictions on freedom of thought, inquiry and expression in the United States." He is now a member of the board of trustees. His personal philanthropies are generous and far-reaching.

In 1940 Ford married Anne McDonnell, of Southampton, New York, turning Roman Catholic to do so. They have two daughters and a son—all of whom are carefully protected, as was Ford when he was a boy, from the danger of kidnappers (when young Ford attended Hotchkiss he had a bodyguard known as a swimming instructor). Ford will not permit, for instance, any photographs taken of his home, a spacious but nonpalatial Georgian brick house comfortably furnished with early American pieces.

Ford is considered to be an amiable person—when he is not opposed. He prefers tweeds, is an expert horseman, plays tennis and golf, enjoys hunting and fishing. He flies his own plane, frequently with his family to Southampton for weekends.


Most days he rises around 6 A.M. and drives to the factory in a new car, one day off the assembly line. Having tested it, going and coming, he returns it and picks up another new one for the evening drive home. Ford seldom goes to night clubs, but entertains frequently at home. He is a moderate social drinker, and a rare to hardly-ever smoker. He golfs in the 90's, and sometimes takes his wife

skiing. He insists firmly that he understands nothing about machinery. Nevertheless, he seems to be doing all right.

And so is Howard Hughes, who weighs in with Joseph N. Pew, Jr., at \$350 million. Over the years, more words have probably been written about this gaunt meteor than about all the other men put together. For all the others have a flair for life, but in Hughes the flair approaches genius.

He has always been much more than just rich. He is a man who took over his father's tool plant when he was 20, and turned it into a multimillion-dollar business. He is the man

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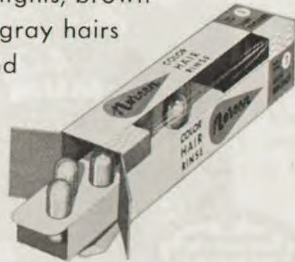
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who made Hell's Angels, and discovered Jean Harlow. He is the man who broke the land, transcontinental and round-the-world speed records in planes he designed, built and flew himself. He is a man who never remarried after an early divorce, and who has spent his playboy hours escorting girls like Billie Dove, Katharine Hepburn, Lana Turner, Mitzi Gaynor, Ava Gardner and Ginger Rogers. People say he is a man who knows how to break up a romance without breaking up a friendship. And he is the man who, while making *The Outlaw*, designed the cantilever brassiere which started Jane Russell on the road to fame.

Howard Hughes' father was a Missouri lawyer who started out for the far West early in the century, and found himself permanently delayed in Texas. Attempting to drill for oil, he was balked by the problem of getting through rock—so he invented a rock drill, and founded the Hughes Tool Company to manufacture it. In his childhood young Howard, who had been born on December 24, 1905, was allowed to play around the tool yards. By the age of three a talent for mechanical invention was unmistakable; a few years later his father equipped a complete workshop for the boy. In his early teens he built himself a radio, with odds and ends of electrical equipment lying around the shop. At 15 he began taking flying lessons, with his father's money and reluctant blessings.

For schooling, he attended the Fessenden School, near Boston; the Thacher School in Ojai, California; and Rice Institute, in Houston. He was a freshman at the California Institute of Technology, Pasadena, California, when his father died. He was only 18, but a year or so later he took over complete control of the \$500,000 company and put it on the road to its present million-dollar-profits success.

By 1926, the business safely in the capable hands of his managers and the money pouring in, Hughes went to Hollywood to satisfy his ambition to make movies. His first successful one was *Hell's Angels*, with Jean Harlow, which cost \$4 million to make and brought in a profit of \$3 million. Hughes did a great deal of the writing and directing himself, as he did on his following pictures, *Scarface* and *The Front Page*. A few years later he produced *The Outlaw*, and fought it through the censors.

But movies weren't enough to absorb the energies of this thin and driving young man. After a session of copiloting with American Airlines, deciding what he thought was wrong with commercial planes, he set up a workshop in a Los Angeles hangar, and started designing planes. The flights resulting from this experimentation made him famous, and fame reached its climax in 1938 when he broke the current record by flying around the world in three days and nineteen hours.

While Hughes is no longer a record-breaking aviator, he still retains his interest in flying. He helped design and launch the *Constellation*, he owns the majority of the stock of *Trans World Airlines*, and he flies his own private planes. He also spends time on the affairs of the Hughes Tool Company, on the brewery he decided to establish in one of the company's unused buildings (which is now one of the largest breweries in the West) and until recently the RKO motion-picture studios, which he picked up one casual morning in Hollywood for \$8,825,690.

These days Hughes lives most of the time in Las Vegas, Nevada, where he leads a strange and outwardly lonely life. He works until he is tired, he sleeps until he is rested—sometimes at his house, sometimes in hotel rooms. He eats when he feels like it, usually steak, green salad with Roquefort dressing. He carries most of his business in his head, and does business by telephone, often calling associates in the middle of the night. "I don't know whether Howard is a genius or crazy," says one of them. "Maybe he's a little of both. I know I sometimes feel like blowing my top when I hear the phone ring at four A.M. But then he's always so polite and apologetic for waking me up, I forget about it."

People of "importance" find it hard to get near Hughes. Sometimes he disappears, even from his associates, for days at a time. But when he is in Las Vegas he wanders into and

out of the night spots at all hours, often lingering to talk with bellboys or bartenders. He seldom drinks or gambles. "Howard likes Las Vegas because he is nocturnal in his habits and Las Vegas never sleeps," says a friend. "He likes to be able to find a restaurant open in case he wants a sandwich."

Hughes' wife, the beautiful Ella Rice, whom he married when he was 19, divorced him a few years later, mostly for inattention. Since then he has had many romances, but none of them serious enough to lead to marriage. As for the women involved, they are said to fall in love not with his fortune or his fame but actually with Hughes himself.

In many ways, Hughes seems frugal. He spends almost nothing on clothes, for his favorite dress is shirt, slacks and tennis shoes. Sometimes he makes night-club managers add up the check again in his presence, asking why they charged so much for some particular item. He has no known church affiliation, and his only recorded recent philanthropies have been the Howard Hughes Medical Institute and the Howard Hughes Medical Research Scholarships and Fellowships, both of California. The standard directory, *American Foundations and Their Fields*, states that it was unable to obtain any information on these organizations for the 1955 edition. Howard Hughes may be the most publicized millionaire, but it is clear that not everything about him is known, nor will it ever be.

At the opposite end of the publicity spectrum is Joseph Newton Pew, Jr., contender for the \$350 million third place. In Mr. Pew's Philadelphia (that is, non-Texan) environs, money is not impressive. Family is. So is the Republican Party. So is the Presbyterian Church. Publicity is definitely not desirable, and over the years the Pew family has managed to avoid it with dignified agility. Even the Pew Memorial Foundation, organized in Philadelphia by the family in 1948 "exclusively for religious, charitable, scientific, literary or educational purposes," and reporting assets of over \$100 million, is virtually unknown, even in Philadelphia.

Joseph Pew was born in Pittsburgh on November 12, 1886, son of the founder of the Sun Oil Company. He attended Haverford School, Haverford, Pennsylvania, and was graduated from Cornell in 1908. He joined Sun Oil the same year, first working in the purchasing department and then, at his father's suggestion, laying pipe in the oil field and performing other oily but instructive tasks for five years. After that he rose, to become chairman in 1947. He is also chairman of the board of the associated Sun Shipbuilding and Dry Dock Company, of which his older brother, John Howard Pew, is a director.

Aside from oil, Mr. Pew's primary passion for many years has been the Republican Party—particularly the party in Pennsylvania. However, his political power resulting from his generosity has somewhat waned in recent years, due to Democratic gains at the Pennsylvania polls. Other philanthropies include the Pew Foundation, the Presbyterian Church and a Philadelphia hospital.

Mr. Pew lives in Ardmore, on Philadelphia's socially correct Main Line. His large and handsome house is of red brick, and the garden is a show place. In the spring a beautiful rock garden is its main feature. The house, comfortable but not conspicuous, is furnished with eighteenth-century Philadelphia antiques. In addition, there is a country estate not many miles away, with a spacious stone house, some riding horses and a herd of beef cattle. Something of a sportsman, in his youth Pew was a squash and tennis player. He is also an ardent salmon fisherman.

Six feet tall, with bushy eyebrows and a shrewd, long upper lip, Mr. Pew is said to have "a quick humorless smile." He lives a quiet and decorous life with his wife, whom he married in 1916, participating only mildly in the social affairs of the Main Line. Their three daughters and their son, all married, live nearby.

As different from Mr. Pew as a rumba from a minuet, Clint W. Murchison breezes in next with his \$300 million. Mr. Murchison likes loud neckties, hearty companions, and the



deep pleasure which comes from owning half a hundred big companies. He owns gas lines and oil wells, taxi, bus and steamship companies, a string of motels, a chain of grocery stores, banks and insurance companies, a fishing-tackle factory, a New York book-publishing house, and part of the New York Central Railway. He owns a chain of radio and television stations and a chain of drugstores. He is part owner of three large cattle ranches. He is, naturally, a Texan.

Murchison's father was the bank president in Athens, Texas, where young Clint was born in 1895. His father taught him the mysteries of finance early, and brought him into the bank as a teller after the boy had been expelled from Trinity University for shooting craps and refusing to sign a pledge that he would shoot no more. By this time, however, young Murchison had learned all about trading from his friend Richardson, four years his senior. After a short and boring stint, he quit the bank and started out on his own, first in trading, then with Richardson in oil.

By the time he was 32 he could, and did, sell out his interests for \$5 million, and retire. But he soon discovered that hunting and fishing as a full-time occupation left much to be desired: principally the fun of making more money. Soon he was back in financial circulation, concentrating at first on natural gas, but eventually proliferating into his present state of multiple ownership. He lets good managers run his companies, and spends his own abundant energies on what is sometimes called "wheeling and dealing."

"Murchison is the kind of man," says Richardson, laughing, "who tells you, 'Here, hold this horse while I go and catch another one.' First thing you know, you got your hands full of Murchison horses." One Murchison horse, for a while, was Senator Joseph McCarthy, a good friend.

Murchison's first wife died while his two sons were young, and the busy tycoon brought them up himself. The

two boys, recently graduated from Yale and the Massachusetts Institute of Technology, are now associated with their father in business.

With his pretty second wife, Virginia, Murchison lives in a twenty-room mansion near Dallas. He likes to give big parties, to see his guests take off their coats, roll up their sleeves and have a good time. A focus of most parties is a large bar, with walls covered with tarpon scales. He keeps a private plane for business trips, and also to whisk him to Richardson's island in the Gulf of Mexico, or his own huge ranch and shooting preserve in the mountains of Mexico. The Murchisons once entertained the Duke and Duchess of Windsor at the ranch, and the visit apparently left no permanent scars on either side.

A man's-type man, Murchison says the favorite of his several homes is the one which has eight beds in one room, "so a group of us boys can talk oil all night." Wherever he is, though, his servants know when he's home by his undeviating shout of arrival: "Start the juleps rolling!"

Like Clint Murchison's father, Paul Mellon's father was also a banker—but rather richer. Andrew Mellon's banking, steel, aluminum and oil fortune could never be estimated, but it was thought to be over a billion; when he became President Hoover's Secretary

of the Treasury he resigned from the boards of fifty-one corporations. His son Paul comes along in the \$250 million class, and with only a few banking and philanthropic-fund associations to his Who's Who name.

Young Paul, who was born in 1907, grew up in a large, gloomy Pittsburgh mansion, surrounded by servants, guards and underlings; he was a little frightened of his awesome father, and spoke later of his father's "ice-water smile." His parents were divorced when he was a child, and his mother returned to her native Ireland, where the boy spent several months with her every year. With this background, it is perhaps not surprising that Paul Mellon resembles the description of his father: "The shiest of all American men of wealth." Little or nothing is printed about his personal life.

Young Paul attended Choate and Yale, to both of which alma maters he has since contributed generously. At

Yale he wrote poetry, edited the literary magazine, and said he wanted to be a publisher. But after graduation he went into the banking business; in 1931 he began learning it in the Mellon National Bank of Pittsburgh, under the direct supervision of his father. Except for a four-year spell with the Army (in which he enlisted in 1941 as a private) and the OSS overseas, he has been continuously associated with his father's industrial and financial enterprises.

But there is much more to Paul Mellon than banking. Described as a scholar and philosopher by his friends, he shows his true interests in the organizations to which he has chosen to give both time and money. He created and finances the Bollingen Foundation, which helps scholars and gives an annual and coveted prize to poets. He created the Old Dominion Foundation, which is interested in the humanities, higher education, mental health and the conservation of natural resources. He is director of the Fund for the Advancement of Education (created by the Ford

Foundation) and a trustee of Washington's great National Gallery of Art, which his father gave to the nation. In 1939 young Mellon actively directed interior construction of the gallery.

Mellon's many philanthropies are quiet, effective and clearly motivated by sincere personal interest in human welfare.

"I believe that it is essential that private citizens rather than the Government support our colleges," he once said in a speech. "It's much healthier to have our colleges supported directly by the people."

Mellon's first wife, whom he married in 1935 and who bore him a boy and a girl, died in 1946. Two years later he married his present wife, Rachel. Their home is a spacious stone house with white pillars on an estate in Virginia. There, for many years, Mellon has operated the famous Rokeby Stables, which has produced many winning race horses. Something of a fisherman, for a long time he had an estate in Florida, which he sold in 1950. Mellon, unlike some of the other millionaires, is a man of many facets.

So is August A. Busch, the St. Louis brewer who, of all the millionaires, seems to many to get the most fun from his money. In his case it amounts to \$250 million, and never has a fortune been more zestfully enjoyed—except

## GRANDMOTHER

By HELEN MITCHEL

With thread and needle she outlined a bear,

A romping dog, a kitten and a duck

On bibs her three grandchildren were to wear

When eating at her table. She would tuck

The white cloth under famished mouths, and I,

A youthful mother, had no knowledge of

The tender memories they must untie,

Nor had I lived enough to fathom love.

But now her gentle hands are lost to view

Among the shadows, lessening like a dream.

I have the bibs . . . they're all worn out but two,

And even they are frayed along the seam.

Sit still, my precious grandson, while I pin

This romping dog beneath your baby chin.

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perhaps by his grandfather Adolphus, who came from Bavaria 100 years ago and turned a little brewery into a giant.

At 58, Busch is a joyful leader in the vitality sweepstakes. He sings German folk songs until midnight, and gallops at dawn in pink coat and bowler hat over the Missouri fields on one of his hunters. He drives a dashing sleigh over the snows in winter, and is a sharp-eyed man with a shotgun when the geese and ducks are flying over. He lives in princely splendor with his family in a great French Renaissance château a few miles south of St. Louis, where he has been known to entertain on one occasion 11,000 beer wholesalers, retailers and

saloonkeepers. Usually, however, he entertains his family—a large, cohesive and sociable clan. Believing, as he once said, that only sports involving wild animals, dogs, guns and horses were worthy of a man's attention, Busch startled the sports world in 1953 when he bought the St. Louis Cardinals, a baseball team. Today he loves to put on the Cardinal uniform and toss the ball around with the boys.

August Busch is the fourth member of his family to head the Anheuser-Busch Brewery. His father and grandfather were already immensely wealthy when he was born in St. Louis on March 28, 1899, and the boy was raised in

a tradition of luxury and German joviality. There was a zoo on the Grant's Farm estate (where Mr. Busch still lives) and every summer the two elephants and the Shetland ponies were moved with the family to the summer home in Cooperstown, New York. Early in life the boy was taught to ride: first Sicilian donkeys, then Shetland ponies, then hunters and jumpers.

Schooling was casual, and after a short stay at Smith Academy, a private school in St. Louis, he left the academic life forever. "Without doubt," he says now, "I was the world's louisiest student. I never graduated from anything."

But young Busch entered the family business in 1924, learned the hard way while the company made soft drinks and yeast during prohibition, and took over with a capable hand following the death of his father, and later of his older brother. Today he is president of the company, which he largely owns with his family.

Generally considered hot-tempered but fair, Busch often bellows at his family or at members of his board, "Let me finish! Then you can blow your top!"

His voice is said to resemble that of a hoarse lion. The effect, however, is particularly good on *Ach du Lieber Augustin* or *Ist Das Nicht Ein Schnitzelbank?*

Busch's first wife died in 1933; his second marriage ended in divorce and a one-million-

XXXXXXXXXXXXXXXXXXXX

#### THOMAS JEFFERSON

SAYS:

It is a comfort that the medal has two sides. There is much vice and misery in the world, I know; but more virtue and happiness, I believe.

Our liberty cannot be guarded but by the freedom of the press, nor that be limited without danger of losing it.

XXXXXXXXXXXXXXXXXXXX

dollar property settlement. His third wife, Gertrude, the daughter of a Swiss restaurant proprietor, is tall and beautiful. She shares her husband's enthusiasm for chasing foxes and, like him, is an excellent shot. In the family tradition, she loves wild animals (there are herds of deer and a zoo on the estate) and sometimes adopts and raises motherless fawns. She also loves to travel about the country with her husband, who first used a private bus fitted out like a land yacht, then a private plane, and who now owns and uses the most luxurious private railroad car on the tracks. An eighty-six-foot home-away-from-home, it is equipped with a sitting room, four conference rooms, kitchen, bar, baths, accommodations for eleven people, and a generous supply of beer. To visitors, the car gives a dazzling impression of stainless steel and glass. The décor is "advanced modern."

Since his last marriage, some say Mr. Busch no longer shouts and hollers in the old free style. Mrs. Busch, say his friends, has gentled him to the point where his supply of energy is now only tremendous.

Possessing another kind of energy, quiet John D. Rockefeller III uses most of it to give money away in useful ways. Between 1900 and 1953 the Rockefeller family gave away one billion dollars of its oil-founded wealth. The five Rockefeller brothers, John, Nelson, Laurance, Winthrop and David, are continuing the tradition. Most of them probably possess wealth close to that of their elder brother, but his is thought to be slightly larger because of his position in the family and also because of careful investment of what was a slightly bigger sum to begin with. Their father has for years been distributing his money among his sons.

"John and his four brothers feel," the New York Times quotes a friend as saying, "that their wealth is not a God-given right. It's an accident to them that they have this wealth.

Therefore they have a powerful sense of responsibility to see that the means that are theirs are used not just for personal ends, but for social ends.

"And as they've gone along, they've also felt that whatever job they've done has had to be justified on its own merits, that they didn't buy their way into anything. They've had to work at it."

John, with his \$250 million, his disinterest in business, his position as eldest brother and his inborn sense of dedication, has probably worked hardest. Since his graduation from Princeton in 1929 (encouraged at first by his father, but later under his own steam) he has



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taken an active and direct interest in the work of the many Rockefeller foundations and other organizations which he heads.

The gentlest and most withdrawn of the brothers, Rockefeller is known for his quiet tact, for his determination to study all the facts at first hand before making a decision. Not many years ago he made a grueling trip through the jungles of Africa, trying to find out for himself where his money might do the most good. So modest was his rumpled appearance, so unheralded his arrival that many officials refused to believe that he really was John D. Rockefeller III.

Recent interests, branching out from those of his family, include the world's pressing population problem, and the Far East—Japan in particular. He now travels frequently to Japan, and likes nothing better than sitting around in fishing or farming villages, talking to fishermen or peasants. He also is fond of talk sessions with student groups, even in India where students are famously critical of American capitalism.

By report, he enjoys his new presidency of the projected Lincoln Center for the Performing Arts in New York City—the first time any member of his family has been associated with this branch of the arts.

"I never had any great knowledge or particular ability in the arts," he says. "But my wife majored in music in college and had a broader experience in the arts than I. And we have given our four children the same exposure, and it has been a really significant factor in their development. They get great pleasure from concerts, from good records and from their own playing."

**R**aised in a frugal tradition by his parents, Rockefeller at 51 now lives not frugally but quietly. He and his tall, willowy and charming wife, the former Blanche Hooker, do little entertaining and usually go to bed fairly early. Rockefeller has been known to shudder visibly at the suggestion that a short night-club stop might be made on the way home from the theater. He almost never drinks, although he might sip at a sherry on festival days. Unless he is staying at the family estate in the country, he rises early in his duplex apartment overlooking New York's East River, and walks across town to his skyscraper office. All day, then, he is deep in plans for wiping out malaria, balancing man and nature in Japan, or building comfortable dressing rooms for New York's actors.

"He has a beautiful soul," commented a Japanese, smiling at the phrase, but sure of his judgment.

Though Rockefeller seems devoted almost entirely to the sweet uses of prosperity, Robert Winship Woodruff, our last millionaire (with \$200 million), seems a fine example of the well-rounded life. For many years Woodruff has managed to balance sports, business and philanthropy in his life. He is almost unknown out of his native South—yet he is Coca-Cola, he golfs with President Eisenhower, and the research station he established has virtually wiped out malaria in Georgia.

Woodruff's father had the foresight to buy the Coca-Cola Company in 1919 from another visionary who had bought it from the inventor for \$1750. The elder Woodruff paid \$25 million, and it is now worth many times that amount.

Young Robert, who was born in Columbus, Georgia, in 1889, trudged through military academy and a few semesters of Emory University in Georgia and then left to work on his own. In 1923 he permitted his father to bring him into the business as president—and he has been a power in the industry ever since.

Like Henry Ford, Woodruff recognized that a business is happy if the workers, the retailers and everyone concerned are also happy. Coca-Cola is very happy indeed, particularly since it has become a world-wide beverage.

In 1955 Woodruff retired, but his life is far from idle. He loves to entertain, and his plantation in South Georgia with its gracious, Southern-style house is famous for its hospitality. He is a strenuous host, however, smoking numerous strong cigars, drinking

(Coca-Cola, no doubt) and playing poker until midnight and expecting his guests (male variety) to do likewise. At dawn the guests are roused to go hunting, and protests have no effect. President Eisenhower is said to be the only guest who ever rose earlier than Woodruff, somewhat to Woodruff's reported dismay.

Woodruff has had the same butler for thirty-five years, the same cook for thirty years. And he has also been fortunate with the women in his life. Of his mother, a servant said when she died, "Miss Emily was the sort of person who could go to heaven without changing her clothes." He has had the same tiny, devoted

and lively wife for forty-four years—a constant companion on Woodruff's many travels, often quietly in the background, but usually right there. "Miss Nell's" influence is particularly felt on the plantation, where she has encouraged the Negro laborers to sing the old spirituals, and has in effect organized a choir. Listening to their songs in the evenings is a favorite pastime.

Woodruff is said by his friends to be a combination of his shrewd businessman father and his warm, generous and gentle mother. It is her influence, perhaps, which makes his philanthropies many, and as private as he can keep them.

"A religious man" in the eyes of his friends, he has contributed heavily to the Presbyterian Church, and has helped his Negro friends with their churches and boys' clubs. He has given sizable grants to Emory University to help fight cancer, malaria and venereal diseases. Close friends notice that until he has diverted some of his profits to useful human service he seems uncomfortable.

Apparently extroverted, Woodruff has restless and moody spells, when he recalls his favorite saying: "The future belongs to the discontented." Often he broods. But this, it seems, is an occupational disease suffered by all conscientious millionaires. END



*Rest now,  
for you have years  
of life to face  
And many paths  
to walk beneath the sun.*

—JESSE STUART

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the village disclosed a charred fragment of human bone—the first bone of any kind to be found at the site. This and other unidentifiable bone fragments, found in an extensive ash bed, constitute possible evidence of cremation.

In light of his discoveries and the dates assigned by radioactivity measurements to several specific articles, Ford believes that the Poverty Point culture may represent the earliest southward movement of people of the Hopewell culture.

Artifacts recovered by Ford's group show that the prehistoric inhabitants of the village had begun to make clay pottery as well as utensils of copper and soapstone. They used hematite bolas and fashioned jewelry out of quartz and jasper. Because many of the raw materials used in these artifacts do not occur naturally in Louisiana, their presence is considered to be evidence that the villagers traded with people of other regions.

The use of bird effigies, both in earth mounds and on vessels and ornaments, is not uncommon in "American Neolithic" cultures, Ford said. Bird effigies seem to have had religious significance and to have figured in ceremonies and cures. However, the giant bird represented in the large mound at Poverty Point appears to be flying due north, while the bird of the smaller mound is headed due west. The directions, in each case, are within a single degree of the true direction. The knowledge of astronomy implied, together with the geometric design of the villages, indicates a greater familiarity with the rudiments of science than has been heretofore attributed to aboriginal Americans.

## News Briefs

■ The following research projects were reported in the 6 Aug. issue of *Nature*.

The chromosomes of palms have been almost impossible to study because of their habit of clumping. A. K. Sharma and S. K. Sarkar of the University of Calcutta have now found that excellent fixation and spreading of these refractory chromosomes may be obtained by treating the root-tip cells with aesculine, an alkaloid obtained from the horse-chestnut. None of the chemical agents satisfactory with other plants has served to do this.

J. Langridge of the University of Adelaide reports that he has obtained a biochemical mutation in one of the flowering plants, the cruciferous *Arabidopsis thaliana*. By developing a method for growing it in aseptic culture, he obtained after x-ray treatment a mutant type that is unable to synthesize thiamine (vitamin B<sub>1</sub>).

A recent study of the polyhedral virus,

which causes a blood disease in the crane fly, *Tipula paludosa*, reveals that the multiplication of the virus takes place inside the nuclei of the blood cells. Kenneth M. Smith, of the Virus Research Unit, Cambridge, England, has published electron micrographs which show that the rod-shaped virus particles form in the nucleus, that each becomes surrounded by a vesicle, and that these vesicles collect into an aggregate inside the nuclear membrane. Then the vesicles appear to contract, and eventually a polyhedral crystal of the virus is extruded into the cytoplasm.

B. P. Wiesner and J. Yudkin of the University of London have tested the effects of a variety of antimetabolic agents upon the fertility of mice. One of these agents, podophyllin, regularly interrupts pregnancy when administered 3 days or more after the time of mating. No resistance to the drug seems to be built up, and full fertility returns when the drug is no longer administered, at least after 3 interrupted pregnancies had occurred. The drug was not effective when administered immediately after mating. It produced no noticeable side-effects.

—B.G.

■ An expedition of the Academy of Natural Sciences of Philadelphia left for Peru on 10 Sept. to make a study of the aquatic life of the Amazon. The two sites to be studied are Iquitos and Tingo Maria. Ruth Patrick, curator of limnology, heads the expedition group, which consists of Matthew H. Hohn, algologist; Selwyn S. Roback, entomologist; Frederick A. Aldrich, invertebrate zoologist; Yvonne Swabey, chemist; John Cairns, Jr., protozoologist; Charles C. G. Chaplin, associate in the academy's fish department; and Josephine deN. Henry, associate in the photography department.

The expedition is supported by the Catherwood Foundation of Bryn Mawr, Pa., of which Cummins Catherwood is president. This foundation sponsored a preliminary visit to the Amazon headwaters in June, when Patrick, Hohn, and H. Radclyffe Roberts, director of the academy, selected the survey sites.

The purpose of the expedition is to determine whether or not there is a greater diversity and a greater abundance of aquatic life in tropical streams than in similar ones in the temperate zone.

Two methods of study will be used. In one a group of scientists will collect the various groups of aquatic life in selected sections of the river; identify their species, and correlate them as to numbers and kinds with findings in similar temperate-zone rivers. The second method will employ the Catherwood diatometer, an instrument containing

laboratory slides that is floated in streams to collect diatoms. The structure of the population of diatoms will be compared with populations in similar temperate-zone rivers.

■ The Army is cutting back on its privately contracted bacteriological and chemical warfare research at Camp Detrick, near Frederick, Md. A \$2,750,000 annual contract with the Ralph M. Parsons Co. of Los Angeles was terminated in August. The firm is said to have employed 450 persons at Detrick.

■ The Tennessee Valley Authority has announced a 5-year extension of its fertilizer research and testing contracts with agricultural experiment stations in eight states. Included are the seven Tennessee Valley states of Alabama, Georgia, Mississippi, Tennessee, Virginia, North Carolina and Kentucky, and the State of Washington.

■ The Norwegian Meteorological Institute is expanding its radio meteorographic station on Bear Island and establishing a new station at Isfjord in Spitzbergen as part of a plan to improve weather forecasting in the arctic regions. Norway also operates meteorological stations at Jan Mayen and Hopen in the Arctic.

## Scientists in the News

E. DAHL-IVERSEN, professor of surgery at the University of Copenhagen, Denmark, will deliver this year's Charles H. Mayo memorial lectures at Northwestern University medical school. On 26 Oct. he will discuss the functions of the endocrine organs during the postoperative period.

Dahl-Iversen, well-known for his surgical work in the field of endocrine glands, is also chief of surgical services of the University Surgical Clinic at Rigshospitalet, Copenhagen. He is to be awarded an honorary fellowship in the American College of Surgeons at its annual clinical congress which meets in Chicago, 31 Oct.–4 Nov.

HENRY H. BABCOCK, former superintendent of the Butler Hospital in Providence, R.I., has been appointed to the staff of the department of hygiene at Harvard University. Butler Hospital, a 111-year-old institution for the mentally ill, was forced to close because of mounting operating deficits.

EDWARD F. HAMMEL of the University of California's Los Alamos Scientific Laboratory has been selected as the recipient of the American Chemical Society's California Section award for



1955. The award, a gold medal, will be presented during a section meeting that will take place on 10 Oct. at the University of California, Berkeley. Following the presentation Hammel will talk on "Helium 3 and its relationship to the problem of liquid helium." The award was established in 1950 for the purpose of recognizing outstanding achievement in the field of chemistry or chemistry technology by a young scientist from one of the 11 western states.

FRANCISCO GRANDE, associate professor of physiological hygiene at the University of Minnesota, left on 18 Sept. to make a 6-week lecture tour of 12 major Central and South American medical centers. At Minnesota he is concerned with the study of the relationship of diet and activity habits to degeneration of the heart and blood vessel system. During his Latin American trip he will lecture on human nutrition, a subject on which he has written three books and 130 scientific papers.

A graduate of the University of Madrid medical school, Grande had conducted research in several European countries before he came to the United States; he joined the Minnesota staff in 1953. Charles Pfizer and Co., Inc., New York, is sponsoring his current trip.

LUCIEN A. BAVETTA, professor of biochemistry and nutrition in the School of Dentistry, University of Southern California, has been appointed to serve for 1 year as visiting scientist in the National Institute of Dental Research, Bethesda, Md. He will work in the Laboratory of Oral and Biological Chemistry, where he will expand his research on the relation of certain dietary deficiencies to the development of diseases of the teeth.

NATHANIEL B. NICHOLS, an authority on servomechanisms and other intricate electronics apparatus, has been named manager of Raytheon Manufacturing Co.'s commercial equipment engineering activities. He was formerly manager of the firm's research division. The appointment is part of the Waltham, Mass., firm's reorganization of its equipment operations, a reorganization designed to establish separate facilities for Government and commercial products.

WILLIAM RANDOLPH TAYLOR, professor of botany at the University of Michigan, has been elected foreign member of the Linnean Society of London.

MARTIN G. GALE has been named director of technical service for the monomer department of the Borden Co.'s chemical division. Gale, who has more than 10 years of experience in the for-

mulation of adhesives, coatings, and impregnants, will head the technical service laboratory in Leominster, Mass. The laboratory offers free technical advice and assistance to industrial users of polyvinyl alcohol, polyvinyl acetate, and a wide variety of other natural and synthetic resins manufactured by Borden's.

LEO M. TARAN has announced his resignation as medical and research director at St. Francis Hospital and Sanatorium for Cardiac Children, Roslyn, N.Y. He has been connected with the hospital since its founding in 1938. During its 18-year existence the institution has grown from a convalescent home for children recovering from rheumatic fever to a hospital for the treatment of all forms of heart disease in children and young adults. It has become a center for cardiologic research and teaching in pediatric cardiology. Taran has opened offices at the Garden City Medical Center, Garden City, N.Y.

JOHN J. GILMAN, metallurgist at the General Electric Research Laboratory, has been named winner of the 1956 Rossiter W. Raymond memorial award, which is presented by the American Institute of Mining and Metallurgical Engineers. The award is given each year to the AIME member under 33 years of age who has written the technical paper judged to be most outstanding on the basis of technological content, proficiency of organization, and literary style. Gilman was honored for his article, "Study of a new mode of plastic deformation in zinc crystals" that was published in the *Journal of Metals*.

SAMUEL A. GOLDBLITH, associate professor of food technology at Massachusetts Institute of Technology, has been appointed executive officer of the institute's department of food technology. He has been a member of the staff since 1949.

HARRY L. OWENS, former chief of the solid-state devices branch at the U.S. Army Signal Corps Engineering Laboratories, Fort Monmouth, N.J., has joined Texas Instruments, Inc., Dallas, as chief engineer of the semiconductor products division. He will be responsible for the development and engineering of germanium and silicon semiconductor products. The company is a producer of high-temperature silicon transistors as well as of general-purpose germanium transistors and silicon junction diodes.

ISAO IMAI, professor of physics at the University of Tokyo, Tokyo, Japan, will serve as a visiting professor at the University of Maryland during the fall term.

He will be attached to the Institute of Fluid Dynamics and Applied Mathematics, where his activities will include the conduct of a weekly seminar on approximation methods in fluid dynamics.

AUSTIN B. WILLIAMS, acting director for the University of North Carolina Institute of Fisheries Research at Morehead City, has accepted appointment to the regular faculty of the University of Illinois, Chicago, in the department of biology. Williams has been in charge of shrimp investigations at the Institute of Fisheries Research for the past 4 years.

PAUL WEBER, professor of chemical engineering and director of the School of Engineering at Georgia Institute of Technology, has been named dean of faculties.

CHERRY L. EMERSON, vice president of Georgia Institute of Technology, retired from that post on 30 June. Emerson, who is a graduate of the institute, joined the staff in 1945 as dean of engineering, and has served as vice president since 1948. He plans to enter practice in Atlanta as a consulting engineer.

G. H. BENHAM, for the past 5 years supervisor in charge of biochemistry research at the Armour Research Foundation, Chicago, Ill., has been appointed director of research and process development for the American Agricultural Chemical Co.

GERALD H. LOVINS, for 15 years research director for the American Instrument Co., Inc., Silver Spring, Md., has joined the research staff of the Photovolt Corp., New York, where he will devote most of his time to the development of new products.

ALAN C. BURTON, professor of biophysics at the University of Western Ontario, will deliver the Montreal Clinical Society's Louis Gross memorial lecture on 1 Nov. during the annual fall convention of the Montreal Medico-Chirurgical Society. He will discuss the "Clinical importance of the physiology of temperature regulation."

R. GRANT ATHAY, member of the senior scientific staff of the High Altitude Observatory of the University of Colorado, Boulder, has accepted a 1-year appointment at the Harvard College Observatory, Cambridge, Mass., effective this month. Athay's recent work has been concerned with the reduction and analysis of the data obtained by the Khartoum eclipse expedition that was conducted by the High Altitude Observatory in 1952.



Many thanks for your very kind letter of  
January 21st.

Since I had written you, I had some conversations with Harrison Brown and Jonas Salk, touching on some of the issues which you have raised in your letter. As you say, before we can go very much further there ought to be a planning conference of potential Affiliate Members in a relaxed and comfortable atmosphere. Since the number of Affiliate Members may not exceed twelve, such a conference will necessarily be small in size. Mr. Canfield has been aware from the very beginning of the need of holding such a conference at an early date, and he may attempt to set a date when the responses to the original letters that were sent out are in.

With kind regards,

Sincerely,



Nature of Virus Multiplication

© Cambridge Press 1953 probably

Bawden Price

Virus Multiplication considered as -  
form of protein Synthesis



O'Connor

Ed Munrow

Peter Odegaard

Steele Low  
2

Falk Foundation

Neuropsychiatrist Wolf  
Cornell Med School

Eric ~~Eric~~ Fromm

[Sara Wiest R MD]

Alan Prepp

Jimmy Francis

Drue Bookian

Salik 150,000 operation without his salary



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Abstract of Replies from Scientists to the  
Doering-Szilard Memorandum of January 11, 1957  
proposing the creation of two interdependent research institutes  
operating in the general area of public health.

Dr. Fritz A. Lipmann - Harvard Medical School, Biochemical Research Laboratory,  
Massachusetts General Hospital:

"I need not tell you that I am rather interested in the project and would like to help as much as I may be able to, in its planning and possibly in its execution."

He suggests a planning conference.

Dr. Harrison Brown - Department of Geology, California Institute of Technology:

"Leo Szilard had shown me much of the material when I was in New York shortly after the New Year and he was aware of my enthusiasm concerning the broad aspects of the proposed institutes."

"On the whole I like the idea very much although I can foresee a number of difficulties both from the organizational and the administrative points of view. In view of this I wholeheartedly concur with the suggestion of Dr. Lipmann to the effect that a meeting consisting of a few interested persons be held to discuss the matter further."

Dr. Linus Pauling - Division of Chemistry and Chemical Engineering, California Institute of Technology:

"I like the plan for a Research Institute for Fundamental Biology and Public Health, set up to encourage original and unconventional sorts of investigations. I feel also that the plan for an Institute for Problem Studies is a good one."

"I am sure that there will be great progress in biology and medicine during the next few decades. The effective application of chemistry and physics to biological and medical problems is a matter of rather recent years. Experience has shown that when a new method of attack becomes available, progress often results from setting up a new institution."

"I shall look forward to hearing about the progress of the project, as time goes on."

Dr. H. J. Muller - Department of Zoology, University of Indiana:

"Please pardon my long delay in replying. I was having to meet



Dr. H. J. Muller (continued)

several unavoidable deadlines for things that were very time-consuming and because of the very importance of your project I did not want to answer you on the basis of an inadequate consideration of it. Not that I have yet considered it as much as I should have but at least I feel sure that it would be a privilege for me to be associated with it if it materializes."

Dr. Muller goes on to question the practicability of "the ten-year time limit" on Research Associates. Also he is of the opinion that it would be better "to hit a few things hard" rather than try to cover too much ground.

Dr. Jonas E. Salk - School of Medicine, University of Pittsburgh:

"I need not repeat what Szilard has undoubtedly reported to you -- that is, that I am excited at knowing that there are people thinking and doing something about the questions he, Doering, and you have been discussing. There is, I am sure, a great need for a group of world citizens who have been identified with problems that affect all mankind, to give thought to the unevenness with which birth into this world is accompanied by means for subsistence and opportunity for survival -- to say nothing of the opportunity to make some contribution to the solution of problems, large or small."

Whether Salk will eventually be willing to become an Affiliate Member of the Research Institute for Fundamental Biology and Public Health is open to doubt. At the present time he says, "I cannot welcome a new wave that would keep me from resting after a long, hard swim", but it is certainly possible that if this project progresses, he will wish to identify himself with it.

Dr. Edward Teller - Department of Physics, Radiation Laboratory, University of California

"I have studied with greatest interest the proposals by Szilard and Doering concerning a scientific project of unusually wide scope. I am not surprised to find that the proposals are of great interest. I believe that there exists a need of research bringing together various branches of thought and escaping the overspecialization which characterizes too much of today's science."

Dr. Teller goes on to say that while he hopes it will be possible to obtain support for the proposals in the memorandum, he cannot be a participant in this project because of his "ignorance" of biology, which is the focus of interest in the Doering-Szilard proposals. Doubtless he will be available for advice.

Cass Canfield