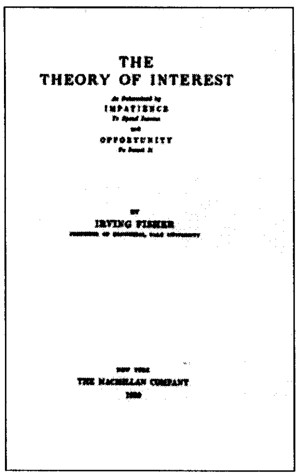
IRVING FISHER, *THE THEORY OF INTEREST, AS DETERMINED BY IMPATIENCE TO SPEND INCOME AND OPPORTUNITY TO INVEST IT* (1930)

URL of this E-Book: http://oll.libertyfund.org/EBooks/Fisher_0219.pdf
URL of original HTML file: http://oll.libertyfund.org/Home3/HTML.php?recordID=0219



THE
THEORY OF INTEREST

IRVING FISHER

THE MACMILLAN COMPANY

ABOUT THE AUTHOR
Irving Fisher was one of America's greatest mathematical economists and one of the clearest economics writers of all time. He had the intellect to use mathematics in virtually all his theories and the good sense to introduce it only after he had clearly explained the central principles in words. Although he damaged his reputation by insisting throughout the Great Depression that recovery was imminent, contemporary economic models of interest and capital are based on Fisherian principles. Similarly, monetarism is founded on Fisher's principles of money and prices.

ABOUT THE BOOK
Fisher was one of America's greatest mathematical economists. This book is still used a textbook and is an outstanding example of clearly written economic theory.

THE EDITION USED
The Theory of Interest, as determined by Impatience to Spend Income and Opportunity to Invest it (New York: Macmillan, 1930).

TABLE OF CONTENTS

FIRST SUMMARY

SECOND SUMMARY

PART I. INTRODUCTION

PART II. THE THEORY IN WORDS

PART III. THE THEORY IN MATHEMATICS

PART IV. FURTHER DISCUSSION

ANALYTICAL TABLE OF CONTENTS

CHAPTER I
INCOME AND CAPITAL

CHAPTER II
MONEY INTEREST AND REAL INTEREST

CHAPTER VIII
DISCUSSION OF THE SECOND APPROXIMATION

CHAPTER IX
THIRD APPROXIMATION TO THE THEORY OF INTEREST
ASSUMING INCOME UNCERTAIN

CHAPTER X
FIRST APPROXIMATION IN GEOMETRIC TERMS

CHAPTER XI
SECOND APPROXIMATION IN GEOMETRIC TERMS

CHAPTER XII
FIRST APPROXIMATION IN TERMS OF FORMULAS

CHAPTER XVIII SOME ILLUSTRATIVE FACTS

CHAPTER XIX
THE RELATION OF INTEREST TO MONEY AND PRICES

CHAPTER XX
OBJECTIONS CONSIDERED

CHAPTER XXI
SUMMARY

APPENDICES

APPENDIX TO CHAPTER I. INCOME AND CAPITAL

APPENDIX TO CHAPTER X. FIRST APPROXIMATION IN GEOMETRIC TERMS

APPENDIX TO CHAPTER XII. FIRST APPROXIMATION IN TERMS OF FORMULAS

APPENDIX TO CHAPTER XIII. SECOND APPROXIMATION IN TERMS OF FORMULAS

APPENDIX TO CHAPTER XIX. THE RELATION OF INTEREST TO MONEY AND PRICES

APPENDIX TO CHAPTER XX. OBJECTIONS CONSIDERED

LIST OF CHARTS

LIST OF TABLES IN TEXT

LIST OF TABLES IN APPENDICES

IRVING FISHER, *THE THEORY OF INTEREST, AS DETERMINED BY IMPATIENCE TO SPEND INCOME AND OPPORTUNITY TO INVEST IT* (1930)

THE THEORY OF INTEREST

THE MACMILLAN COMPANY
NEW YORK · BOSTON · CHICAGO · DALLAS
ATLANTA · SAN FRANCISCO

MACMILLAN & CO., LIMITED

LONDON · BOMBAY · CALCUTTA
MELBOURNE

THE MACMILLAN COMPANY
OF CANADA, LIMITED
TORONTO

THE THEORY OF INTEREST

AS DETERMINED BY
IMPATIENCE
TO SPEND INCOME

AND

OPPORTUNITY
TO INVEST IT

BY

IRVING FISHER
PROFESSOR OF ECONOMICS, YALE UNIVERSITY

NEW YORK
THE MACMILLAN COMPANY
1930

SET UP AND ELECTROTYPED. PUBLISHED MARCH, 1930.

PRINTED IN THE UNITED STATES OF AMERICA
BY BERWICK & SMITH CO.

TO
THE MEMORY
OF
JOHN RAE
AND OF
EUGEN VON BÖHM-BAWERK
WHO LAID THE FOUNDATIONS
UPON WHICH
I HAVE ENDEAVORED
TO BUILD

ERRATA

PAGE XXVI, CHART TITLE 45: FOR "$\mathbf{P}$" READ "P''"; CHART TITLE 46, THIRD LINE: FOR "$\mathbf{P}$'S" READ "P''S."

PAGE 182, LINE 5: FOR "EFFECT" READ "AFFECT."

PAGE 305, LINE 1: FOR "I" READ "I'."

PAGE 418, LINE 5: FOR "&PLUS;" READ "–."

PAGE 423, SIXTH LINE FROM BOTTOM: FOR "6.7" READ "7.3."

PAGE 424, IN CHART TITLE: FOR "P, P', P''" READ "P, P', $\mathbf{P}$."

PAGE 426, LINE 2: FOR "P' AND P''" READ "P' AND $\mathbf{P}$"; LINE 4: FOR "P''" READ "$\mathbf{P}$"; LINE 7: FOR "P''" READ "$\mathbf{P}$."

PAGE 442, LINE 6: FOR "LEAVES" READ "LEAVING"; LINE 10, FOR "LEAVES" READ "LEAVING."

PREFACE

THE TREMENDOUS EXPANSION OF CREDIT DURING AND SINCE THE WORLD WAR TO FINANCE MILITARY OPERATIONS AS WELL AS POST-WAR REPARATIONS, RECONSTRUCTION, AND THE REBUILDING OF INDUSTRY AND TRADE HAS BROUGHT THE PROBLEMS OF CAPITALISM AND THE NATURE AND ORIGIN OF INTEREST HOME AFRESH TO THE MINDS OF BUSINESS MEN AS WELL AS TO ECONOMISTS. THIS BOOK IS ADDRESSED, THEREFORE, TO FINANCIAL AND INDUSTRIAL LEADERS, AS WELL AS TO PROFESSORS AND STUDENTS OF ECONOMICS.

INFLATION DURING AND SINCE THE WAR CAUSED PRICES TO SOAR AND REAL INTEREST RATES TO SAG IN GERMANY AND OTHER NATIONS FAR BELOW ZERO THUS IMPOVERISHING MILLIONS OF INVESTORS. IN ALL COUNTRIES GILT-EDGE SECURITIES WITH FIXED RETURN BECAME HIGHLY SPECULATIVE, BECAUSE OF THE EFFECT OF MONETARY FLUCTUATIONS ON REAL INTEREST RATES. AFTER THE WAR THE IMPATIENCE OF WHOLE PEOPLES TO ANTICIPATE FUTURE INCOME BY BORROWING TO SPEND, COUPLED WITH THE OPPORTUNITY TO GET LARGE RETURNS FROM INVESTMENTS, RAISED INTEREST RATES AND KEPT THEM HIGH. INCREASED NATIONAL INCOME HAS MADE THE UNITED STATES A LENDER NATION. AT HOME, REAL INCOMES HAVE GROWN AMAZINGLY BECAUSE OF THE NEW SCIENTIFIC, INDUSTRIAL, AND AGRICULTURAL REVOLUTIONS.

INTEREST RATES HAVE DECLINED SOMEWHAT SINCE 1920, BUT ARE STILL HIGH BECAUSE THE RETURNS UPON INVESTMENTS REMAIN HIGH. IMPATIENCE TO SPEND HAS BEEN EXEMPLIFIED BY THE ORGANIZATION OF CONSUMERS' CREDIT IN THE FORM OF FINANCE COMPANIES SPECIALLY ORGANIZED TO ACCOMMODATE AND STIMULATE INSTALLMENT SELLING AND TO STANDARDIZE AND STABILIZE CONSUMPTION.

THIS BOOK, *THE THEORY OF INTEREST*, WAS BEGUN AS A REVISION OF *THE RATE OF INTEREST*, WHICH WAS PUBLISHED IN 1907, AND HAS LONG SINCE BEEN OUT OF PRINT. REQUESTS FOR ANOTHER EDITION OF THAT WORK HAVE BEEN MADE FROM TIME TO TIME; BUT I HAVE POSTPONED IT YEAR BY YEAR FOR OVER TWO DECADES, BECAUSE I WISHED TO REVISE THE PRESENTATION, AND TO REWRITE THOSE PORTIONS WHICH, IF I MAY JUDGE FROM CRITICISMS, HAVE NOT BEEN UNDERSTOOD.

I HAVE CONSIDERED THE CRITICISMS OF THE FORMER BOOK WHICH HAVE COME TO MY NOTICE, AND HAVE, AS A CONSEQUENCE, MODIFIED THE FORM OF PRESENTATION MATERIALLY. THOUGH, IN SUBSTANCE, MY THEORY OF INTEREST HAS BEEN ALTERED SCARCELY AT ALL, ITS EXPOSITION HAS BEEN SO AMPLIFIED AND RECAST THAT IT WILL, I ANTICIPATE, SEEM, TO THOSE WHO MISUNDERSTOOD MY FIRST BOOK, MORE CHANGED THAN IT SEEMS TO ME. THE RESULT HAS BEEN A NEW BOOK, *THE THEORY OF INTEREST*, A COMPLETE REWRITING OF THE FORMER BOOK, WITH ADDITIONS OF NEW MATERIAL.

I WAS ENCOURAGED TO WRITE THIS NEW EXPOSITION OF THE THEORY OF INTEREST BY VARIOUS ECONOMISTS AND LEADING BUSINESS MEN AND ESPECIALLY BY MR. OSWALD T. FALK, ONE OF THE REPRESENTATIVES OF GREAT BRITAIN AT THE VERSAILLES PEACE CONFERENCE, WHO WAS KIND ENOUGH TO SAY THAT HE HAD GAINED MORE INSIGHT INTO ECONOMIC THEORY FROM *THE RATE OF INTEREST* THAN FROM ANY OTHER BOOK.

YEARS AFTER *THE RATE OF INTEREST* WAS PUBLISHED, I SUGGESTED THE MORE POPULAR TERM "IMPATIENCE" IN PLACE OF "AGIO" OR "TIME PREFERENCE." THIS CATCHWORD HAS BEEN WIDELY ADOPTED, AND, TO MY SURPRISE, HAS LED TO A WIDESPREAD BUT FALSE IMPRESSION THAT I HAD OVERLOOKED OR NEGLECTED THE PRODUCTIVITY OR INVESTMENT OPPORTUNITY SIDE ENTIRELY. IT ALSO LED MANY TO THINK THAT, BY USING THE NEW WORD IMPATIENCE, I MEANT TO CLAIM A NEW IDEA. THUS I FOUND MYSELF CREDITED WITH BEING THE AUTHOR OF "THE IMPATIENCE THEORY" WHICH I AM NOT, AND NOT CREDITED WITH BEING THE AUTHOR OF THOSE PARTS LACKING ANY CATCHWORD. IT WAS THIS MISUNDERSTANDING WHICH LED ME, AFTER MUCH SEARCH, TO ADOPT THE CATCHWORD "INVESTMENT OPPORTUNITY" AS A SUBSTITUTE FOR THE INADEQUATE TERM "PRODUCTIVITY" WHICH HAD COME INTO SUCH GENERAL USE.[1]

IN ECONOMICS IT IS DIFFICULT TO PROVE ORIGINALITY; FOR THE GERM OF EVERY NEW IDEA WILL SURELY BE FOUND OVER AND OVER AGAIN IN EARLIER WRITERS. FOR MYSELF, I WOULD BE SATISFIED TO HAVE MY CONCLUSIONS ACCEPTED AS *TRUE* EVEN IF THEIR ORIGIN SHOULD BE CREDITED BY THE CRITICS WHOLLY TO EARLIER WRITERS. WHILE I HOPE I MAY BE CREDITED WITH A CERTAIN DEGREE OF ORIGINALITY, EVERY THOROUGH STUDENT OF THIS SUBJECT WILL RECOGNIZE IN MY TREATMENT OF INTEREST THEORY FEATURES OF HIS OWN. MY OWN THEORY IS IN SOME DEGREE EVERY ONE'S THEORY. EVERY ESSENTIAL PART OF IT WAS AT LEAST FORESHADOWED BY JOHN RAE IN 1834.

IF THIS COMBINED "IMPATIENCE AND OPPORTUNITY" THEORY CAN BE SAID TO BE AT ALL DISTINCT FROM ALL OTHERS, IT IS BECAUSE IT EXPLICITLY ANALYSES OPPORTUNITY, AND FITS TOGETHER IMPATIENCE AND OPPORTUNITY AND INCOME. THE INCOME CONCEPT PLAYS THE BASIC RÔLE IN THE THEORY OF INTEREST. I VENTURE TO HOPE THAT THE THEORY, AS HERE PRESENTED, WILL BE FOUND NOT SO MUCH TO OVERTHROW AS TO CO-ORDINATE PREVIOUS THEORIES, AND TO HELP IN MAKING THE CHAIN OF EXPLANATION COMPLETE AND STRONG.

CHAPTER I IS ADDED FOR THE PURPOSE OF GIVING THE READER WHO HAS NOT READ MY *NATURE OF CAPITAL AND INCOME*, A BRIEF SUMMARY OF ITS CONTENTS.

I HAVE, FOR THE FIRST TIME, IN A BOOK ON PURE ECONOMIC THEORY, INTRODUCED MATHEMATICS INTO THE TEXT, INSTEAD OF RELEGATING IT ENTIRELY TO APPENDICES. THIS IS DONE IN VIEW OF THE INCREASING USE OF MATHEMATICS AND THE INCREASING NUMBERS OF STUDENTS EQUIPPED TO READ MATHEMATICAL ECONOMICS AND STATISTICS.

PARTS OF CHAPTERS II AND XIX, WITH THEIR APPENDICES, HAVE APPEARED IN DIFFERENT FORM IN MY MONOGRAPH, "APPRECIATION AND INTEREST." THANKS ARE DUE TO THE AMERICAN ECONOMIC ASSOCIATION FOR PERMISSION TO USE PARTS OF THIS MONOGRAPH UNALTERED. SINCE IT APPEARED THREE DECADES AGO, THE VIEW EXPRESSED IN IT (THAT APPRECIATION OR DEPRECIATION IN THE VALUE OF MONEY SHOULD, AND TO SOME EXTENT DOES, LOWER OR RAISE THE RATE OF INTEREST) HAS GAINED CONSIDERABLE CURRENCY, AND HAS BEEN ILLUSTRATED AND VERIFIED BY WAR-TIME EXPERIENCE.

CHAPTER XIX IS MADE UP, FOR THE MOST PART, OF A NEW AND INTENSIVE STUDY OF THE RELATIONSHIPS EXISTING BETWEEN PRICES AND INTEREST RATES. THESE RELATIONSHIPS ARE TESTED BY NEW AND RIGOROUS STATISTICAL METHODS OF ANALYSIS. WHILE THE CONCLUSIONS PRESENTED AS THE RESULTS OF THESE ANALYSES ARE ONLY TENTATIVE, YET THEY ARE, I THINK, WORTHY OF FURTHER STATISTICAL STUDIES INTO THE RELATION OF INTEREST RATES ON THE ONE HAND, AND PRICES, BUSINESS ACTIVITY, BANK RESERVES, AND BANK LOANS ON THE OTHER.

IN THE PREPARATION OF THE ORIGINAL BOOK I RECEIVED IMPORTANT AID FROM MANY PERSONS. FINANCE MINISTER BÖHM-BAWERK, WHOSE WRITINGS ON INTEREST AND WHOSE HISTORY OF THE SUBJECT ARE CLASSIC, KINDLY READ AND CRITICIZED THE CHAPTER DEVOTED TO HIS THEORY OF INTEREST. AFTERWARD, IN THE THIRD EDITION OF HIS *POSITIVE THEORIE DES KAPITALES* AND THE *EXKURSE* THERETO, HE DEVOTED MORE THAN 100 PAGES TO DISCUSSIONS AND CRITICISMS, FAVORABLE AND UNFAVORABLE, OF *THE RATE OF INTEREST* AS IT FIRST APPEARED. I HAVE TAKEN ACCOUNT OF HIS CRITICISM IN CHAPTER XX.

IN PREPARING THIS BOOK I HAVE RECEIVED SUGGESTIONS AND ASSISTANCE FROM SO MANY ECONOMISTS AND OTHERS IN THE UNITED STATES AND ABROAD, THAT IT IS IMPRACTICABLE TO MENTION THEM ALL BY NAME. MY ASSOCIATES, DR. ROYAL MEEKER, DR. MAX SASULY, AND MR. BENJAMIN P. WHITAKER, HAVE CONTRIBUTED IN HELPFUL CRITICISM, AS WELL AS IN GATHERING MATERIAL, PREPARING THE MANUSCRIPT FOR THE PRINTER, AND READING THE PROOF. I AM ESPECIALLY INDEBTED TO MY BROTHER, MR. HERBERT W. FISHER, FOR HIS SUGGESTIONS AS TO STYLE AND THE MANNER OF PRESENTATION, AND TO PROFESSOR HARRY G. BROWN FOR HIS CRITICISM OF MY STATEMENT OF THE OPPORTUNITY PRINCIPLE. OTHERS WHO HAVE HELPED ME ESPECIALLY ARE: PROF. LIONEL D. EDIE, MR. C. O. HARDY, MR. R. G. HAWTRY, PROF. FRANK H. KNIGHT, PROF. J. S. LAWRENCE, PROF. ARTHUR W. MARGET, PROF. H. B. MEEK, PROF. WESLEY C. MITCHELL, MRS. CLARA ELIOT RAUP, PROF. HENRY SCHULTZ, PROF. HENRY R. SEAGER, MR. HENRY SIMONS, MR. CARL SNYDER, PROF. JACOB VINER.

I HAVE ALSO RECEIVED VALUABLE SUGGESTIONS FROM MEMBERS OF MY CLASS IN THE ECONOMICS OF DISTRIBUTION; NAMELY, HOWARD BEROLZHEIMER, A. G. BUEHLER, FRANCIS W. HOPKINS, RICHARD A. LESTER, DANIEL T. SELKO, ANDREW STEVENSON, JR., AND RONALD B. WELCH.

IRVING FISHER

YALE UNIVERSITY,
JANUARY, 1930

FOOTNOTES FOR PREFACE

1. THIS TERM, INVESTMENT OPPORTUNITY, SEEMS TO BE THE NEAREST EXPRESSION IN POPULAR LANGUAGE TO SUGGEST OR DENOTE THE TECHNICAL MAGNITUDE *R* EMPLOYED IN THIS BOOK. THE FULL EXPRESSION FOR *R* IS THE RATE OF RETURN OVER COST, AND BOTH COST AND RETURN ARE DIFFERENCES BETWEEN TWO OPTIONAL INCOME STREAMS. SO FAR AS I KNOW, NO OTHER WRITER ON INTEREST HAS MADE USE OF INCOME STREAMS AND THEIR DIFFERENCES, OR RATES OF RETURN OVER COST PER ANNUM. THE NEAREST APPROXIMATION TO THIS USAGE SEEMS TO BE IN THE WRITINGS OF PROFESSOR HERBERT J. DAVENPORT, PARTICULARLY HIS *ECONOMICS OF ENTREPRISE*, (MACMILLAN, NEW YORK, 1913) PAGES 368, 379, 381, 394, 395, 396, 410, 411.

SUGGESTIONS TO READERS

- 1.THE *GENERAL READER* WILL BE CHIEFLY INTERESTED IN PARTS I, II, AND IV.
- 2. *READERS WITH A DISTASTE FOR MATHEMATICS* WILL FIND THE ESSENTIAL THEORY STATED IN WORDS IN PART II.
- 3. *THOSE INTERESTED IN STATISTICAL ANALYSIS* SHOULD READ CHAPTER XIX.
- 4. THE APPENDIX TO CHAPTER XIX CONTAINS THE STATISTICAL TABLES USED IN THE ANALYSIS PRESENTED IN THE TEXT.
- 5. THE ANALYTICAL TABLE OF CONTENTS, THE INDEX, AND THE RUNNING PAGE HEADINGS HAVE BEEN CONSTRUCTED WITH ESPECIAL REFERENCE TO THE VARYING NEEDS OF DIFFERENT CLASSES OF READERS. THE BOOK PRESENTS A COMPLETE THEORY OF INTEREST, AND IT IS HOPED THAT THOSE WHO APPROACH IT FROM SPECIAL VIEWPOINTS MAY, IN THE END, READ IT ALL.

PART I. INTRODUCTION

CHAPTER I
INCOME AND CAPITAL[1]

§1. SUBJECTIVE, OR ENJOYMENT, INCOME

INCOME IS A SERIES OF EVENTS.[2]

ACCORDING TO THE MODERN THEORY OF RELATIVITY THE ELEMENTARY REALITY IS NOT MATTER, ELECTRICITY, SPACE, TIME, LIFE OR MIND, BUT EVENTS.

FOR EACH INDIVIDUAL ONLY THOSE EVENTS WHICH COME WITHIN THE PURVIEW OF HIS EXPERIENCE ARE OF DIRECT CONCERN. IT IS THESE EVENTS—THE PSYCHIC EXPERIENCES OF THE INDIVIDUAL MIND—WHICH CONSTITUTE ULTIMATE INCOME FOR THAT INDIVIDUAL. THE OUTSIDE EVENTS HAVE SIGNIFICANCE FOR THAT INDIVIDUAL ONLY IN SO FAR AS THEY ARE THE MEANS TO THESE INNER EVENTS OF THE MIND. THE HUMAN NERVOUS SYSTEM IS, LIKE A RADIO, A GREAT RECEIVING INSTRUMENT. OUR BRAINS SERVE TO TRANSFORM INTO THE STREAM OF OUR PSYCHIC LIFE THOSE OUTSIDE EVENTS, WHICH HAPPEN TO US AND STIMULATE OUR NERVOUS SYSTEM.

BUT THE HUMAN BODY IS NOT ORDINARILY REGARDED AS AN OWNED OBJECT, AND ONLY THOSE EVENTS IN CONSCIOUSNESS TRACEABLE TO OWNED OBJECTS OTHER THAN THE HUMAN BODY ARE GENERALLY ADMITTED TO BE PSYCHIC INCOME. HOWEVER, THE HUMAN MACHINE STILL PLAYS A RÔLE IN SO FAR AS, THROUGH ITS PURPOSEFUL ACTIVITIES, IT PRODUCES, OR HELPS PRODUCE, OTHER OWNED OBJECTS WHICH ARE MATERIAL SOURCES OF DESIRABLE EVENTS—FOOD, HOUSES, TOOLS, AND OTHER GOODS, WHICH IN THEIR TURN SET IN MOTION A CHAIN OF OPERATIONS WHOSE ULTIMATE EFFECT IS REGISTERED IN OUR STREAM OF CONSCIOUSNESS. THE IMPORTANT CONSIDERATION FROM THIS POINT OF VIEW IS THAT HUMAN BEINGS ARE EVER STRIVING TO CONTROL THE STREAM OF THEIR PSYCHIC LIFE BY APPROPRIATING AND UTILIZING THE MATERIALS AND FORCES OF NATURE.

IN MAN'S EARLY HISTORY HE HAD LITTLE COMMAND OVER HIS ENVIRONMENT. HE WAS LARGELY AT THE MERCY OF NATURAL FORCES—WIND AND LIGHTNING, RAIN AND SNOW, HEAT AND COLD. BUT TODAY MAN PROTECTS HIMSELF FROM THESE BY MEANS OF THOSE CONTRIVANCES CALLED HOUSES, CLOTHING, AND FURNACES. HE DIVERTS THE LIGHTNING BY MEANS OF LIGHTNING RODS. HE INCREASES HIS FOOD SUPPLY BY MEANS OF APPROPRIATED LAND, FARM BUILDINGS, PLOWS, AND OTHER IMPLEMENTS. HE THEN REFASHIONS THE FOOD BY MEANS OF MILLS, GRINDING MACHINERY, COOK-STOVES AND OTHER AGENCIES, AND BY THE LABOR OF HUMAN BODIES, INCLUDING HIS OWN.

NEITHER THESE INTERMEDIATE PROCESSES OF CREATION AND ALTERATION NOR THE MONEY TRANSACTIONS FOLLOWING THEM ARE OF SIGNIFICANCE EXCEPT AS THEY ARE THE NECESSARY OR HELPFUL PRELIMINARIES TO PSYCHIC INCOME—HUMAN ENJOYMENT. WE MUST BE CAREFUL LEST, IN FIXING OUR EYES ON SUCH PRELIMINARIES, ESPECIALLY MONEY TRANSACTIONS, WE OVERLOOK THE MUCH MORE IMPORTANT ENJOYMENT WHICH IT IS THEIR BUSINESS TO YIELD.

DIRECTORS AND MANAGERS PROVIDING INCOME FOR THOUSANDS OF PEOPLE SOMETIMES THINK OF THEIR CORPORATION MERELY AS A GREAT MONEY-MAKING MACHINE. IN THEIR EYES, ITS ONE PURPOSE IS TO EARN MONEY DIVIDENDS FOR THE STOCK-HOLDERS, MONEY INTEREST FOR THE BONDHOLDERS, MONEY WAGES AND MONEY SALARIES FOR THE EMPLOYEES. WHAT HAPPENS AFTER THESE PAYMENTS ARE MADE SEEMS TOO

PRIVATE A MATTER TO CONCERN THEM. YET THAT IS THE NUB OF THE WHOLE ARRANGEMENT. IT IS ONLY WHAT WE CARRY OUT OF THE MARKET PLACE INTO OUR HOMES AND PRIVATE LIVES WHICH REALLY COUNTS. MONEY IS OF NO USE TO US UNTIL IT IS SPENT. THE ULTIMATE WAGES ARE NOT PAID IN TERMS OF MONEY BUT IN THE ENJOYMENTS IT BUYS. THE DIVIDEND CHECK BECOMES INCOME IN THE ULTIMATE SENSE ONLY WHEN WE EAT THE FOOD, WEAR THE CLOTHES, OR RIDE IN THE AUTOMOBILE WHICH ARE BOUGHT WITH THE CHECK.

§2. OBJECTIVE, OR REAL, INCOME (OUR "LIVING")

ENJOYMENT INCOME IS A PSYCHOLOGICAL ENTITY AND CANNOT BE MEASURED DIRECTLY. WE CAN APPROXIMATE IT INDIRECTLY, HOWEVER, BY GOING ONE STEP BACK OF IT TO WHAT IS CALLED REAL INCOME. REAL WAGES, AND INDEED REAL INCOME IN GENERAL,CONSIST OF THOSE FINAL PHYSICAL EVENTS IN THE *OUTER* WORLD WHICH GIVE US OUR *INNER* ENJOYMENTS.

THIS REAL INCOME INCLUDES THE SHELTER OF A HOUSE, THE MUSIC OF A VICTROLA OR RADIO, THE USE OF CLOTHES, THE EATING OF FOOD, THE READING OF THE NEWSPAPER AND ALL THOSE OTHER INNUMERABLE EVENTS BY WHICH WE MAKE THE WORLD ABOUT US CONTRIBUTE TO OUR ENJOYMENTS. METAPHORICALLY WE SOMETIMES REFER TO THIS, OUR REAL INCOME, AS OUR "BREAD AND BUTTER."

THESE FINALS IN THE STREAM OF OUTER EVENTS ARE WHAT WE CALL OUR "LIVING," AS IMPLIED IN THE PHRASES COST OF LIVING AND EARNING A LIVING. THE FINAL OUTER EVENTS AND THE INNER EVENTS WHICH THEY ENTAIL RUN CLOSELY PARALLEL, OR, RATHER, THE INNER EVENTS GENERALLY FOLLOW CLOSELY IN TIME ON THE OUTER. THE ENJOYMENT OF MUSIC IS FELT ALMOST INSTANTANEOUSLY AS THE PIANO OR SINGER PRODUCES IT. THE ENJOYMENT OF FOOD IS EXPERIENCED WITH THE EATING OR SOON AFTER THE EATING.

THESE OUTER EVENTS, SUCH AS THE USE OF FOOD, OR CLOTHES, ETC., ARE LIKE THE RESULTANT INNER EVENTS IN NOT BEING VERY EASILY MEASURED. THEY OCCUR LARGELY IN THE PRIVACY OF THE HOME; THEY ARE OFTEN DIFFICULT TO EXPRESS IN ANY STANDARD UNITS. THEY HAVE NO COMMON DENOMINATOR. EVEN THE INDIVIDUAL WHO EXPERIENCES THEM CANNOT WEIGH AND MEASURE THEM DIRECTLY. ALL HE CAN DO IS TO MEASURE THE MONEY HE PAID TO GET THEM.

§3. COST OF LIVING, A MEASURE OF REAL INCOME

SO, JUST AS WE WENT BACK OF AN INDIVIDUAL'S ENJOYMENT INCOME TO HIS REAL INCOME, WE NOW GO BACK OF HIS REAL INCOME, OR HIS LIVING, TO HIS COST OF LIVING, THE MONEY MEASURE OF REAL INCOME. YOU CANNOT MEASURE IN DOLLARS EITHER THE INNER EVENT OF YOUR ENJOYMENT WHILE EATING YOUR DINNER OR THE OUTER EVENT OF EATING IT, BUT YOU CAN FIND OUT DEFINITELY HOW MUCH MONEY THAT DINNER COST YOU. IN THE SAME WAY, YOU CANNOT MEASURE YOUR ENJOYMENT AT MOVING PICTURE THEATER, BUT YOU DO KNOW WHAT YOU PAID FOR YOUR TICKET; YOU CANNOT MEASURE EXACTLY WHAT YOUR HOUSE SHELTER IS REALLY WORTH TO YOU, BUT YOU CAN TELL HOW MUCH YOU PAY FOR YOUR RENT, OR WHAT IS A FAIR EQUIVALENT FOR YOUR RENT IF YOU HAPPEN TO LIVE IN YOUR OWN HOUSE. YOU CANNOT MEASURE WHAT IT IS WORTH TO WEAR AN EVENING SUIT, BUT YOU CAN FIND OUT WHAT IT COSTS TO HIRE ONE, OR A FAIR EQUIVALENT OF ITS HIRE IF, PERCHANCE, THE SUIT BELONGS TO YOU. DEDUCING SUCH EQUIVALENTS IS AN ACCOUNTANT'S JOB.

THE TOTAL COST OF LIVING, IN THE SENSE OF MONEY PAYMENTS, IS A NEGATIVE ITEM, BEING OUTGO RATHER THAN INCOME; BUT IT IS OUR BEST PRACTICAL MEASURE OF THE POSITIVE ITEMS OF REAL INCOME FOR WHICH THOSE PAYMENTS ARE MADE. FOR FROM THIS TOTAL VALUATION OF POSITIVE REAL INCOME MAY BE SUBTRACTED THE TOTAL VALUATION OF THE PERSON'S LABOR PAIN DURING THE SAME PERIOD; IF WE WISH TO COMPARE A LABORER'S INCOME WITH THAT OF A MAN WHO DOES NO LABOR BUT LIVES ON HIS INCOME FROM CAPITAL (OTHER THAN HIMSELF), A "RENTIER."

ENJOYMENT INCOME, REAL INCOME, AND THE COST OF LIVING ARE MERELY THREE DIFFERENT STAGES OF INCOME. ALL THREE RUN CLOSELY PARALLEL TO EACH OTHER, ALTHOUGH THEY ARE NOT EXACTLY SYNCHRONOUS IN TIME. THESE DISCREPANCIES, AS HAS BEEN INTIMATED, ARE NEGLIGIBLE AS BETWEEN REAL AND ENJOYMENT INCOME. SO ALSO THE TIME ELAPSING BETWEEN THE COST OF LIVING AND THE LIVING IS USUALLY BRIEF. THERE IS A LITTLE DELAY BETWEEN THE SPENDING OF MONEY AT THE BOX OFFICE AND THE SEEING OF THE ENTERTAINMENT, OR BETWEEN PAYING BOARD OR RENT AND MAKING USE OF THE FOOD OR HOUSING FACILITIES. IN MANY CASES, THE MONEY PAYMENT FOLLOWS RATHER THAN PRECEDES THE ENJOYMENT.

§4. COST OF AN ARTICLE VS. COST OF ITS USE

THE ONLY TIME DISCREPANCY WORTH CAREFUL NOTING IS THAT WHICH OCCURS WHEN THE MONEY SPENT IS NOT SIMPLY FOR THE TEMPORARY USE OF SOME OBJECT BUT FOR THE WHOLE OBJECT, WHICH MEANS MERELY FOR ALL ITS POSSIBLE FUTURE USES. IF A HOUSE IS NOT RENTED BUT BOUGHT, WE DO NOT COUNT THE PURCHASE PRICE AS ALL SPENT FOR THIS YEAR'S SHELTER. WE EXPECT FROM IT MANY MORE YEARS OF USE. HENCE OUT OF THE ENTIRE PURCHASE PRICE, WE TRY TO COMPUTE A FAIR PORTION OF THE PURCHASE PRICE TO BE CHARGED UP TO THIS YEAR'S USE. IN LIKE MANNER, THE STATISTICIANS OF COST OF LIVING SHOULD DISTRIBUTE BY PERIODS THE COST OF USING A PERSON'S HOUSE FURNISHINGS, CLOTHING, MUSICAL INSTRUMENTS, AUTOMOBILES AND OTHER DURABLE GOODS, AND NOT CHARGE THE ENTIRE COST AGAINST THE INCOME OF THE YEAR OF PURCHASE. TO ANY GIVEN YEAR SHOULD BE CHARGED ONLY THAT YEAR'S UPKEEP AND REPLACEMENT, WHICH MEASURES, AT LEAST ROUGHLY, THE SERVICES RENDERED BY THE GOODS IN QUESTION DURING THAT PARTICULAR YEAR. THE TRUE REAL ANNUAL INCOME FROM SUCH GOODS IS THE EQUIVALENT APPROXIMATELY OF THE COST OF THE SERVICES GIVEN OFF BY THOSE GOODS EACH YEAR.

STRICTLY SPEAKING, THEN, IN MAKING UP OUR INCOME STATISTICS, WE SHOULD ALWAYS CALCULATE THE VALUE OF *SERVICES*, AND NEVER THE VALUE OF THE OBJECTS RENDERING THOSE SERVICES IT IS TRUE THAT, IN THE CASE OF SHORT-LIVED OBJECTS LIKE FOOD, WE DO NOT ORDINARILY NEED, IN PRACTICE, TO GO TO THE TROUBLE OF DISTINGUISHING THEIR TOTAL COST FROM THE COST OF THEIR USE. A LOAF OF BREAD IS WORTH TEN CENTS BECAUSE ITS USE IS WORTH TEN CENTS. WE CANNOT RENT FOOD; WE CAN ONLY BUY IT OUTRIGHT. YET THERE IS SOME DISCREPANCY IN TIME IN THE CASE OF FOODS THAT KEEP, SUCH AS FLOUR, PRESERVED FOODS AND CANNED GOODS. THESE WE MAY BUY IN ONE YEAR BUT NOT USE UNTIL A LATER YEAR, AND IN SUCH CASES THE MONEY GIVEN FOR THE FOOD MIGHT ALMOST BE SAID TO BE INVESTED RATHER THAN SPENT, LIKE THE MONEY GIVEN FOR A HOUSE. A MAN WHO BUYS A BASKET OF FRUIT AND EATS IT WITHIN AN HOUR IS

CERTAINLY SPENDING HIS MONEY FOR THE ENJOYMENT OF EATING THE FRUIT. BUT, IF HE BUYS A BARREL OF APPLES IN THE FALL TO BE EATEN DURING THE WINTER, IS HE SPENDING HIS MONEY OR IS HE INVESTING IT FOR A DEFERRED ENJOYMENT? THEORETICALLY, THE BARREL OF APPLES IS AN INVESTMENT COMPARABLE TO A HOUSE OR ANY OTHER DURABLE GOOD. PRACTICALLY IT IS CLASSED AS EXPENDITURE, ALTHOUGH IT IS A BORDER-LINE CASE.

SPENDING AND INVESTING DIFFER ONLY IN DEGREE, DEPENDING ON THE LENGTH OF TIME ELAPSING BETWEEN THE EXPENDITURE AND THE ENJOYMENT. TO SPEND IS TO PAY MONEY FOR ENJOYMENTS WHICH COME VERY SOON. TO INVEST IS TO PAY MONEY FOR ENJOYMENTS WHICH ARE DEFERRED TO A LATER TIME. WE SPEND MONEY FOR OUR DAILY BREAD AND BUTTER OR FOR A SEAT AT THE THEATER, BUT WE INVEST MONEY IN THE PURCHASE OF BONDS, FARMS, DWELLINGS, OR AUTOMOBILES, OR EVEN OF SUITS OF CLOTHES.

§5. MEASURING AT THE DOMESTIC THRESHOLD

IN PRACTICE, WE CAN ESTIMATE WITH FAIR ACCURACY IN ALL ORDINARY CASES HOW MUCH OF WHAT WE PAY IS FOR THIS YEAR'S USE. THAT IS TO SAY, WE CAN FIND OUT PRETTY NEARLY OUR COST OF LIVING FOR THE YEAR. WE NEED ONLY RECKON WHAT IS SPENT ON PERSONAL ARTICLES AND SERVICES—ON EVERYTHING WHICH ENTERS OUR DWELLINGS (OR ENTERS US), FOOD, DRINK, CLOTHES, FURNITURE, HOUSEHOLD RENT, FUEL AND LIGHT, AMUSEMENTS, AND SO ON, OUR "BREAD AND BUTTER"—EXCLUSIVE OF WHAT IS LEFT OVER FOR FUTURE YEARS, SUCH AS WHAT WE PAY FOR SECURITIES, MACHINERY, OR REAL ESTATE, OR WHAT WE PUT INTO THE SAVINGS BANK. THE DOMESTIC THRESHOLD IS, IN GENERAL, A PRETTY GOOD LINE OF DIVISION. THE COST OF ALMOST EVERY OBJECT WHICH CROSSES IT MEASURES A PORTION OF OUR REAL INCOME, AND FEW OTHER EXPENDITURES DO.

THUS, AT THE END OF PRODUCTION ECONOMICS, OR BUSINESS ECONOMICS, WE FIND HOME ECONOMICS IT IS THE HOUSEKEEPER, THE WOMAN WHO SPENDS, WHO TAKES THE FINAL STEPS THROUGH THE COST OF LIVING TOWARD GETTING THE REAL INCOME OF THE FAMILY, SO THAT THE FAMILY'S ENJOYMENT INCOME MAY FOLLOW.

§6. MONEY INCOME

WE HAVE JUST BEEN DEALING WITH MONEY PAYMENTS FOR CONSUMPTION GOODS, OR MONEY *OUTGO*. WE MAY NOW GO BACK ONE FURTHER STEP TO MONEY RECEIVED BY THE INDIVIDUAL SPENDER, OR MONEY INCOME. MONEY INCOME INCLUDES ALL MONEY *RECEIVED* WHICH IS NOT OBVIOUSLY, AND IN THE NATURE OF THE CASE, TO BE DEVOTED TO REINVESTMENT—OR, AS THE EXPRESSION IS, "EARMARKED" FOR REINVESTMENT. IN OTHER WORDS, ALL MONEY RECEIVED AND READILY AVAILABLE AND INTENDED TO BE USED FOR SPENDING IS MONEY INCOME. IT SOMETIMES DIFFERS FROM REAL INCOME CONSIDERABLY. FOR INSTANCE, IF YOU MORE THAN "EARN YOUR LIVING" OF $6,000 WITH A SALARY OF $10,000, YOU VOLUNTARILY PUT BY THE $4,000 REMAINING AS SAVINGS. THIS PART OF YOUR MONEY INCOME IS SAVED FROM BEING TURNED IMMEDIATELY INTO REAL INCOME. THAT IS, INSTEAD OF SPENDING ALL YOUR SALARY FOR THIS YEAR'S LIVING YOU INVEST $4,000 OF IT TO HELP TOWARD THE COST OF LIVING OF FUTURE YEARS. AND SO, THE $4,000 IS NOT ONLY CREDITED AS INCOME BUT DEBITED AS OUTGO. WITH IT YOU BUY DURABLE OBJECTS SUCH AS LAND OR BUILDINGS, OR PART RIGHTS IN THESE, SUCH AS STOCKS OR BONDS. YOUR MONEY INCOME IS IN THIS CASE YOUR SALARY (OR IT MAY BE DIVIDENDS, RENT, INTEREST, OR PROFITS) AND IT EXCEEDS REAL INCOME BY THE AMOUNT OF YOUR SAVINGS. ON THE OTHER HAND, YOU MAY BE LIVING BEYOND YOUR (MONEY) INCOME. THIS MEANS, EXPRESSED IN TERMS OF THE CONCEPTS HERE USED, THAT YOUR REAL INCOME FOR THE YEAR IS GREATER THAN YOUR MONEY INCOME.

THAT ALL ONE SPENDS ON HIS LIVING MEASURES REAL INCOME, EVEN WHEN HE "LIVES BEYOND HIS INCOME" (BEYOND HIS *MONEY* INCOME), MAY BE A HARD SAYING TO SOME WHO HAVE NEVER ATTEMPTED TO WORK OUT CONSISTENT DEFINITIONS OF ECONOMIC CONCEPTS WHICH WILL NOT ONLY SATISFY THE REQUIREMENTS OF ECONOMIC THEORY BUT WHICH WILL ALSO BRING THESE ECONOMIC CONCEPTS INTO CONFORMITY WITH THE THEORY AND PRACTICE OF ACCOUNTANCY. BUT A DEFINITION OF INCOME WHICH SATISFIES BOTH THEORY AND PRACTICE, IN BOTH ECONOMICS AND ACCOUNTANCY, *MUST* RECKON AS INCOME IN THE MOST BASIC SENSE ALL THOSE USES, SERVICES, OR LIVING FOR WHICH THE COST OF LIVING IS EXPENDED EVEN THOUGH SUCH EXPENDITURE MAY EXCEED THE MONEY INCOME.

THUS WE HAVE A PICTURE OF THREE SUCCESSIVE STAGES, OR ASPECTS, OF A MAN'S INCOME:

ENJOYMENT OR PSYCHIC INCOME, CONSISTING OF AGREEABLE SENSATIONS AND EXPERIENCES;

REAL INCOME *MEASURED* BY THE COST OF LIVING;

MONEY INCOME, CONSISTING OF THE MONEY RECEIVED BY A MAN FOR MEETING HIS COSTS OF LIVING;

THE LAST—MONEY INCOME—IS MOST COMMONLY CALLED INCOME; AND THE FIRST—ENJOYMENT INCOME—IS THE MOST FUNDAMENTAL. BUT, FOR ACCOUNTING PURPOSES, REAL INCOME, AS MEASURED BY THE COST OF LIVING, IS THE MOST PRACTICAL.[3]

TO RECAPITULATE, WE HAVE SEEN THAT THE ENJOYMENT INCOME IS A PSYCHOLOGICAL MATTER, AND HENCE CANNOT BE MEASURED DIRECTLY. SO WE LOOK TO REAL INCOME INSTEAD; BUT EVEN REAL INCOME IS A HETEROGENEOUS JUMBLE. IT INCLUDES QUARTS OF MILK, VISITS TO THE MOVING PICTURE HOUSE, ETC., AND IN THAT FORM CANNOT BE MEASURED EASILY OR AS A WHOLE. HERE IS WHERE THE COST OF LIVING COMES IN. IT IS THE PRACTICAL, HOMOGENEOUS[4] MEASURE OF REAL INCOME. AS THE COST OF LIVING IS EXPRESSED IN TERMS OF DOLLARS IT MAY, THEREFORE, BE TAKEN AS OUR BEST MEASURE OF INCOME *IN PLACE* OF ENJOYMENT INCOME, OR REAL INCOME. BETWEEN IT AND REAL INCOME THERE ARE NO IMPORTANT DISCREPANCIES AS THERE ARE BETWEEN MONEY INCOME AND REAL INCOME. MONEY INCOME PRACTICALLY NEVER CONFORMS EXACTLY TO REAL INCOME BECAUSE EITHER SAVINGS RAISE MONEY INCOME ABOVE REAL INCOME, OR DEFICITS PUSH MONEY INCOME BELOW REAL INCOME.

§7. CAPITAL VALUE

SAVINGS BRING US TO THE NATURE OF CAPITAL. CAPITAL, IN THE SENSE OF CAPITAL *VALUE*, IS SIMPLY FUTURE INCOME DISCOUNTED OR, IN OTHER WORDS, CAPITALIZED. THE VALUE OF ANY PROPERTY, OR RIGHTS TO WEALTH, IS ITS VALUE *AS A SOURCE OF INCOME* AND IS FOUND BY

DISCOUNTING THAT EXPECTED INCOME. WE MAY, IF WE SO CHOOSE, FOR LOGICAL CONVENIENCE, INCLUDE AS PROPERTY THE OWNERSHIP IN OURSELVES, OR WE MAY, CONFORMABLY TO CUSTOM, REGARD HUMAN BEINGS AS IN A SEPARATE CATEGORY.

I DEFINE WEALTH AS CONSISTING OF MATERIAL OBJECTS OWNED BY HUMAN BEINGS (INCLUDING, IF YOU PLEASE, HUMAN BEINGS THEMSELVES). THE OWNERSHIP MAY BE DIVIDED AND PARCELLED OUT AMONG DIFFERENT INDIVIDUALS IN THE FORM OF PARTNERSHIP RIGHTS, SHARES OF STOCK, BONDS, MORTGAGES, AND OTHER FORMS OF PROPERTY RIGHTS. IN WHATEVER WAYS THE OWNERSHIP BE DISTRIBUTED AND SYMBOLIZED IN DOCUMENTS, THE ENTIRE GROUP OF PROPERTY RIGHTS ARE MERELY MEANS TO AN END—INCOME. INCOME IS THE ALPHA AND OMEGA OF ECONOMICS.

§8. THE RATE OF INTEREST

THE BRIDGE OR LINK BETWEEN INCOME AND CAPITAL IS THE *RATE OF INTEREST*. WE MAY DEFINE THE *RATE OF INTEREST AS THE PER CENT OF PREMIUM* PAID ON MONEY AT ONE DATE IN TERMS OF MONEY TO BE IN HAND ONE YEAR LATER. THEORETICALLY, OF COURSE, WE MAY SUBSTITUTE FOR MONEY IN THIS STATEMENT WHEAT OR ANY OTHER SORT OF GOODS. THIS WILL BE DISCUSSED IN CHAPTER II. BUT PRACTICALLY, IT IS ONLY MONEY WHICH IS TRADED AS BETWEEN PRESENT AND FUTURE. HENCE, THE RATE OF INTEREST IS SOMETIMES CALLED THE PRICE OF MONEY; AND THE MARKET IN WHICH PRESENT AND FUTURE MONEY ARE TRADED FOR THAT PRICE, OR PREMIUM, IS CALLED THE MONEY MARKET. IF $100 TODAY WILL EXCHANGE FOR $105 TO BE RECEIVED ONE YEAR HENCE, THE PREMIUM ON PRESENT MONEY IN TERMS OF FUTURE MONEY IS $5 AND THIS, AS A PERCENTAGE OF THE $100, OR THE RATE OF INTEREST, IS FIVE PER CENT. THAT IS TO SAY, THE PRICE OF TODAY'S MONEY IN TERMS OF NEXT YEAR'S MONEY IS FIVE PER CENT ABOVE PAR. IT SHOULD ALWAYS BE REMEMBERED *THAT INTEREST AND THE RATE OF INTEREST ARE NOT IDENTICAL*. INTEREST IS COMPUTED BY MULTIPLYING CAPITAL VALUE BY THE RATE OF INTEREST.

THE AIM OF THIS BOOK IS TO SHOW HOW THE RATE OF INTEREST IS CAUSED OR DETERMINED. SOME WRITERS HAVE CHOSEN, FOR PURPOSES OF EXPOSITION, TO POSTULATE TWO QUESTIONS INVOLVED IN THE THEORY OF THE RATE OF INTEREST, VIZ., (1) WHY ANY RATE OF INTEREST EXISTS AND (2) HOW THE RATE OF INTEREST IS DETERMINED. THIS SECOND QUESTION, HOWEVER, EMBRACES ALSO THE FIRST, SINCE TO EXPLAIN HOW THE RATE OF INTEREST IS DETERMINED INVOLVES THE QUESTION OF WHETHER THE RATE CAN OR CANNOT BE ZERO, I.E., WHETHER A POSITIVE RATE OF INTEREST MUST NECESSARILY EXIST.

§9. DISCOUNTING IS FUNDAMENTAL

BUT ALTHOUGH THE RATE OF INTEREST MAY BE USED EITHER WAY—FOR COMPUTING FROM PRESENT TO FUTURE VALUES, OR FROM FUTURE TO PRESENT VALUES—THE LATTER PROCESS (DISCOUNTING) IS BY FAR THE MORE IMPORTANT OF THE TWO. ACCOUNTANTS, OF COURSE, ARE CONSTANTLY COMPUTING IN BOTH DIRECTIONS; FOR THEY HAVE TO DEAL WITH BOTH SETS OF PROBLEMS. BUT THE BASIC PROBLEM OF TIME VALUATION WHICH NATURE SETS US IS ALWAYS THAT OF TRANSLATING THE FUTURE INTO THE PRESENT, THAT IS, THE PROBLEM OF ASCERTAINING THE CAPITAL VALUE OF FUTURE INCOME. THE VALUE OF CAPITAL MUST BE COMPUTED FROM THE VALUE OF ITS ESTIMATED FUTURE NET INCOME, NOT *VICE VERSA*.

THIS STATEMENT MAY AT FIRST SEEM PUZZLING, FOR WE USUALLY THINK OF CAUSES AND EFFECTS AS RUNNING FORWARD NOT BACKWARD IN TIME. IT WOULD SEEM THEN THAT INCOME MUST BE DERIVED FROM CAPITAL; AND, IN A SENSE, THIS IS TRUE. INCOME *IS* DERIVED FROM CAPITAL *GOODS*. BUT THE *VALUE* OF THE INCOME IS NOT DERIVED FROM THE *VALUE* OF THE CAPITAL GOODS. ON THE CONTRARY, THE VALUE OF THE CAPITAL IS DERIVED FROM THE VALUE OF THE INCOME. VALUATION IS A HUMAN PROCESS IN WHICH FORESIGHT ENTERS. COMING EVENTS CAST THEIR SHADOWS BEFORE. OUR VALUATIONS ARE ALWAYS ANTICIPATIONS.

THESE RELATIONS ARE SHOWN IN THE FOLLOWING SCHEME IN WHICH THE ARROWS REPRESENT THE ORDER OF SEQUENCE—(1) FROM CAPITAL GOODS TO THEIR FUTURE SERVICES, THAT IS, INCOME; (2) FROM THESE SERVICES TO THEIR VALUE; AND (3) FROM THEIR VALUE BACK TO CAPITAL VALUE:

$$\begin{tikzcd} \text{Capital goods} \arrow[r] & \text{Flow of services (income)} \arrow[d] \\ \text{Capital value} & \text{Income value} \arrow[l] \end{tikzcd}$$

NOT UNTIL WE KNOW HOW MUCH INCOME AN ITEM OF CAPITAL WILL PROBABLY BRING US CAN WE SET ANY VALUATION ON THAT CAPITAL AT ALL. IT IS TRUE THAT THE WHEAT CROP DEPENDS ON THE LAND WHICH YIELDS IT. BUT THE VALUE OF THE CROP DOES NOT DEPEND ON THE VALUE OF THE LAND. ON THE CONTRARY, THE VALUE OF THE LAND DEPENDS ON THE EXPECTED VALUE OF ITS CROPS.

THE PRESENT WORTH OF ANY ARTICLE IS WHAT BUYERS ARE WILLING TO GIVE FOR IT AND SELLERS ARE READY TO TAKE FOR IT. IN ORDER THAT EACH MAN MAY LOGICALLY DECIDE WHAT HE IS WILLING TO GIVE OR TAKE, HE MUST HAVE: (1) SOME IDEA OF THE VALUE OF THE FUTURE BENEFITS WHICH THAT ARTICLE WILL YIELD, AND (2) SOME IDEA OF THE RATE OF INTEREST BY WHICH THESE FUTURE VALUES MAY BE TRANSLATED INTO PRESENT VALUES BY DISCOUNTING.

§10. COSTS, OR NEGATIVE INCOME

COST OF PRODUCTION OF DURABLE AGENTS OR CAPITAL GOODS HAS ITS INFLUENCE INCLUDED IN THE PRECEDING FORMULATION, SINCE ANY COST IS SIMPLY A NEGATIVE ITEM OF INCOME. FUTURE NEGATIVE ITEMS ARE TO BE DISCOUNTED EXACTLY AS FUTURE POSITIVE ITEMS. IT IS TO BE REMEMBERED THAT AT THE GIVEN POINT OF TIME WHEN THE VALUE IS BEING COMPUTED ONLY *FUTURE* COSTS CAN ENTER INTO THE VALUATION OF ANY GOOD. PAST COSTS HAVE NO *DIRECT* INFLUENCE ON VALUE. ONLY INDIRECTLY DO THEY ENTER TO THE EXTENT THAT THEY HAVE DETERMINED THE EXISTING SUPPLY OF GOODS AND HAVE THUS EITHER RAISED OR LOWERED THE VALUE OF THE SERVICES OF THESE GOODS.

IN THIS INDIRECT WAY, PAST COSTS CAN DETERMINE PRESENT VALUES TEMPORARILY AND UNTIL THE PRICES OF GOODS AVAILABLE ARE BROUGHT INTO CONFORMITY WITH THE PRESENT COSTS OF PRODUCTION THROUGH THE OPERATION OF SUPPLY AND DEMAND. FOR EXAMPLE,