

Publication Program for 1931 Outlined; List of Books Available Now

Students of interest rates, bond yields and security prices may also be interested to know that the National Bureau of Economic Research, Inc., now has in press a monograph by Dr. Frederick R. Macaulay on "The Smoothing of Time Series." This grew out of Dr. Macaulay's work on Interest Rates.

In the monograph, Dr. Macaulay not only discusses the *why* but explains the *how* of the different methods of graduating in such simple language that any computer can follow the instructions and obtain the smooth curves. Numerous examples are given of actual graduations by different methods and numerical paradigms showing exactly how to apply the various formulas.

Migration Analysis Also in Press

In press also is the second volume of International Migrations edited by Dr. Walter F. Willcox for the National Bureau of Economic Research, Inc. This volume which is subtitled *Interpretations* contains twenty chapters, two by Dr. Willcox on the Population of the World and the Migration Statistics of the United States, and eighteen others by population authorities in as many other countries, each analyzing and discussing the migration statistics of his own country.

International Migrations, Volume I, Statistics, is a book of 1,112 pages, edited by Dr. Willcox, containing the migration statistics of fifty one countries, compiled by Dr. Imre Ferenczi of the Migration Section of the International Labour Office at Geneva. It is priced at \$10 per copy. Volume II will form a book of approximately 700 pages and will sell at \$7 per copy.

Reports Nearing Completion

In preparation for publication following the foregoing volumes are reports by Dr. Frederick C. Mills, Dr. Willard L. Thorp and Mr. Pierce Williams.

Dr. Mills will present and analyze data covering the pre-war years 1901-1913 and the post-war years 1922-1929 in the four countries United States, Great Britain, France and Germany, which will show the direction, rate and stability of changes in various economic activities.

Dr. Thorp will present a collection of income estimates of various writers covering a number of the leading countries running in some instances back to the sixteenth century. Mr. Williams will report on Contributory Plans for Insurance against Sickness in the United States and Foreign Countries.

Publications Now Ready in Book Form

Publications of the National Bureau in fields related to the above, now ready, in book form, include:

Business Cycles: The Problem and Its Setting, in which Dr. Wesley C. Mitchell lists and discusses the leading theories of business cycles, shows how our modern business economy was evolved and operates, elucidates the uses of statistics and business annals, and combines the results into a single working concept to guide practical policies as well as scientific investigations. This book has been in such demand that an eighth printing has just been necessary. It contains 512 pages and sells for \$6.50 a copy.

The Behavior of Prices, by Frederick C. Mills, is a pioneer study of the inter-relations of commodity prices. Individually and by groups. It contains 598 pages, price \$7 per copy.

The National Income and Its Purchasing Power, by Willford I. King brings up to date the National Bureau's studies of the amount and distribution of the incomes of the American people in a book of 394 pages, available at \$5 a copy.

Planning and Control of Public Works gives the results of an investigation just completed for the Committee on Recent Economic Changes of the President's Conference on Unemployment, in a book of 294 pages at \$3.00 a copy.

Corporation Contributions to Organized Community Welfare Services, by Pierce Williams and Frederick C. Croxton gives the proportion of total contributions received from business corporations by community chests, Red Cross disaster appeals, building fund drives, national social work organizations, Y.M.C.A.'s, etc. It forms a book of 347 pages at \$3.00 a copy. This report is of special interest at a time when business corporations, the country over, are being asked to contribute to emergency relief funds of various kinds.

NATIONAL BUREAU OF ECONOMIC RESEARCH, INC.

THE National Bureau of Economic Research, Incorporated, was organized in 1920 in response to a growing demand for exact and impartial determination of the facts bearing upon economic, social, and industrial problems.

The Bureau seeks not merely to determine facts, but to determine them under such auspices as shall make its findings carry conviction to Liberals and Conservatives alike. It deals only with topics of national importance which are susceptible of quantitative treatment.

By issuing its findings in the form of fact reports, entirely divorced from propaganda, the Bureau hopes to aid all thoughtful men, however divergent their views of public policy, to base their discussions upon objective knowledge as distinguished from subjective opinion.

No report of the Research Staff may be published without the approval of the Board of Directors. Rigid provisions guard the Bureau from becoming a source of profit to its members, directors or officers, and from becoming an agency for propaganda.

The Bureau assumes no obligation to present or future contributors, except to determine and publish facts.

OFFICERS

THOMAS S. ADAMS, Chairman of the Board
HARRY W. LAIDLER, President
A. W. SHAW, Vice-President
GEORGE E. ROBERTS, Treasurer
EDWIN F. GAY
W. C. MITCHELL } Directors of Research
OSWALD W. KNAUTH, Recording Secretary
GUSTAV R. STAHL, Secretary
PIERCE WILLIAMS, Executive Director

DIRECTORS AT LARGE

OSWALD W. KNAUTH, Executive Vice-President, R. H. Macy and Company.
HARRY W. LAIDLER, Executive Director, The League for Industrial Democracy.
THOMAS W. LAMONT, Member of the Firm of J. P. Morgan and Company.
L. C. MARSHALL, Institute for the Study of Law, Johns Hopkins University.
GEORGE O. MAY, Member of the Firm of Price, Waterhouse and Company, New York.
ELWOOD MEAD, United States Commissioner of Reclamation, Washington, D. C.
GEORGE SOULE, Director, The Labor Bureau, Inc.
N. I. STONE, Industrial and Financial Consultant, New York.
MATTHEW WOLL, President, Union Labor Life Insurance Company.

DIRECTORS BY UNIVERSITY APPOINTMENT

T. S. ADAMS, Professor of Political Economy, Yale University
JOHN R. COMMONS, Professor of Economics, University of Wisconsin.
EDWIN F. GAY, Professor of Economic History, Harvard University.
HARRY ALVIN MILLIS, Professor of Economics, University of Chicago.
WESLEY C. MITCHELL, Professor of Economics, Columbia University.
JOSEPH H. WILLITS, Professor of Industry, and Director, Department of Industrial Research, Wharton School of Finance and Commerce, University of Pennsylvania.

DIRECTORS BY APPOINTMENT OF OTHER REPRESENTATIVE ORGANIZATIONS

HUGH FRAYNE, American Federation of Labor.
DAVID FRIDAY, American Economic Association.
LEE GALLOWAY, American Management Association.
ROBERT B. WOLF, American Engineering Council.
GEORGE E. ROBERTS, American Bankers Association.
MALCOLM C. RORTY, American Statistical Association.
A. W. SHAW, National Publishers Association.
CHESTER H. GRAY, American Farm Bureau Federation.

RESEARCH STAFF

EDWIN F. GAY
MEREDITH B. GIVENS
HARRY JEROME
WILLFORD I. KING
SIMON KUZNETS
FREDERICK R. MACAULAY
WESLEY C. MITCHELL
FREDERICK C. MILLS
WILLARD L. THORP
WALTER F. WILLCOX
PIERCE WILLIAMS
LEO WOLMAN

An Organization
for Impartial
Investigation

NEWS-BULLETIN

National Bureau of Economic Research, Inc.

To Find Facts
Divested of
Propaganda

No. 41

51 MADISON AVENUE (MADISON SQUARE) NEW YORK CITY

January 5, 1931

Bond Yields and Business Recovery

Rising prices for high-grade railroad bonds have in the past generally forecast business recovery some months in advance.

The length of time since the prices of high-grade railroad bonds reached bottom (September, 1929) is already greater than the average lag before the beginning of business recovery.

FLUCTUATIONS in the yield ⁽¹⁾ of high-grade American railroad bonds monthly from January 1857 to December 1930 are shown in an index constructed under the supervision of Dr. Fred R. Macaulay of the staff of the National Bureau of Economic Research. The monthly index figures and an accompanying chart are authorized for publication today by the Bureau's Executive Committee. The index is part of a comprehensive investigation by Dr. Macaulay of the relations between the movements of interest rates, bond yields, stock prices and general business since January 1857. In view of public interest at the present moment, the Bureau has decided to release the bond yield figures before publication in the general study. The Bureau considers the index here released the most generally useful index of bond yields which will appear in the larger work. It is only one of a number of indexes there presented. Others include indexes of the movements of the yields of second grade bonds and indexes measuring the relation between the grade of bonds and the movements of their yields month by month from January 1890 to date.

Description of the Index Number

In the index number here presented an attempt has been made to present a picture of the yields of bonds of a high and unchanging grade. The index is a chain arithmetic average of actual yields with an adjustment for the drift resulting from improvement or decline in the grade of the bonds with the passage of time. How this adjustment is made is described in an article in the ~~May~~ 1926 number of the Journal of the American Statistical Association.

From January 1862 to January 1879 the United States was not on a gold basis. This fact must be remembered when examining the bond yields shown on the chart and in the table for that period. The yields shown are "greenback" or "dollar" yields. The extremely low "dollar" yields in 1863 and 1864 are the result of the high "dollar" prices of the bonds. It was, of course, not possible to know *at the time of purchase* what the gold yield of a bond would turn out to be. That was possible only after the bond had matured or specie payments had been resumed. While the "dollar" yields in 1863 and 1864 were extremely low, the "gold" yields (eventually realized) were extraordinarily high. A full discussion of the significance of bond prices and yields in such a period is contained in the study of interest rates to which

1. A rise in bond prices generally means a fall in bond yields, though this is not necessarily true. If the bonds are all selling at a discount, they can advance in price without declining in yield. Changes in yield are somewhat more significant and less ambiguous than changes in price.

reference has already been made. Deductions from the chart or table for the period January 1862 to about 1874 or 1875 are dangerous unless the condition of the currency be carefully considered. After 1875 the "greenback" factor is not so important to consider in connection with the yields of the index, though, until January 1, 1879, it had an influence. The actual resumption of specie payments was much more important than the fact that, for some years before resumption, the premium on gold was relatively small. Until January 1, 1879, speculations as to the future of the currency undoubtedly had an appreciable effect on the movements of bond prices.

Economic Sequences

The timing of the sequences of economic factors in the business cycle is almost inevitably somewhat erratic. If this were not true, the cyclical movements would probably long ago have been greatly reduced in amplitude, if not entirely eliminated. However, in the absence of a complete understanding of the rationale of cyclical movements, a study of the symptoms as revealed in economic sequences cannot be neglected. Sequences of economic factors, as revealed by past history, often constitute almost the only means of attempting to predict the future. To be worthy of much consideration, however, such sequences should be concerned with fundamentally important factors. A fall in bond yields is a more important step in the process of business recovery than a rise in the price of silk.

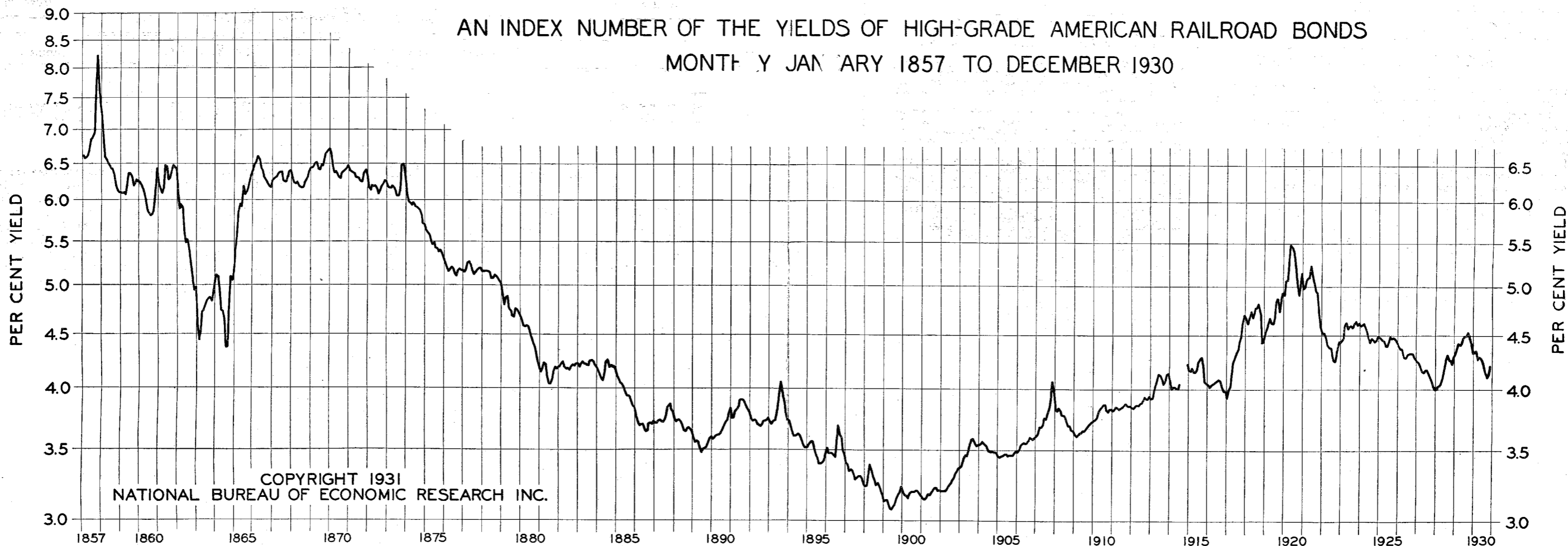
With a recent interruption, the yields of high-grade bonds have been falling since September 1929. Extremely low short time interest rates, falling commodity prices and depressed general business suggest strongly that the recent advance in the yields of high-grade bonds was merely an interruption of a downward trend whose end is not in sight. Such a downward movement of bond yields is a usual forerunner of business recovery.

Present Conditions

While it is no part of the work of the National Bureau to make forecasts of business conditions, it seems eminently proper to summarize the results of our investigations of past experiences. With a very considerable range in the time of lag and with a number of actual exceptions as to even the order, certain financial factors tend to turn before a turn in general business. First, a peak is reached in call money rates, then a peak in time money rates and commercial paper rates, then a peak in the yield of high-grade bonds, then a peak in the yield of second-grade bonds, then a low in stock prices.

When this sequence has been completed, business recovery, as measured by bank clearings, pig iron production, etc., is generally not many months away. Sometimes business recovery begins before the above sequence is completed. At present the action of second-grade bonds and common stocks in making new lows is the uncertain element in the situation. On the other hand, if business recovery were to be delayed very many months, the lag after the peak in call money, time money, commercial paper and high-grade bond yields would be unusually long. As an aid to the understanding of an important factor in the business problem, the National Bureau presents this index of the yields of high-grade railroad bonds.

AN INDEX NUMBER OF THE YIELDS OF HIGH-GRADE AMERICAN RAILROAD BONDS MONTHLY JANUARY 1857 TO DECEMBER 1930



COPYRIGHT 1931
NATIONAL BUREAU OF ECONOMIC RESEARCH INC.

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
1857	6.621	6.577	6.592	6.619	6.696	6.849	6.882	6.952	7.674	8.230	7.668	7.367	1894	3.727	3.681	3.648	3.606	3.607	3.611	3.623	3.602	3.576	3.542	3.516	3.514
1858	7.175	6.820	6.595	6.566	6.500	6.467	6.425	6.427	6.356	6.192	6.122	6.107	1895	3.520	3.551	3.562	3.566	3.519	3.462	3.435	3.392	3.396	3.404	3.418	3.467
1859	6.111	6.101	6.105	6.086	6.202	6.368	6.364	6.323	6.199	6.240	6.275	6.255	1896	3.515	3.475	3.479	3.475	3.456	3.445	3.521	3.607	3.622	3.404	3.487	3.456
1860	6.247	6.206	6.156	6.084	5.973	5.872	5.828	5.812	5.828	5.875	6.163	6.440	1897	3.413	3.389	3.342	3.350	3.338	3.308	3.279	3.296	3.304	3.305	3.289	3.247
1861	6.210	6.153	6.101	6.160	6.492	6.449	6.285	6.310	6.415	6.482	6.442	6.440	1898	3.228	3.233	3.308	3.386	3.351	3.302	3.262	3.238	3.254	3.229	3.197	3.168
1862	6.136	5.902	5.959	5.920	5.621	5.476	5.525	5.414	5.244	5.045	4.939	4.981	1899	3.127	3.132	3.134	3.103	3.078	3.071	3.089	3.107	3.138	3.170	3.190	3.226
1863	4.585	4.440	4.510	4.721	4.730	4.785	4.835	4.866	4.863	4.828	4.935	5.032	1900	3.197	3.172	3.164	3.150	3.178	3.192	3.192	3.194	3.199	3.202	3.183	3.160
1864	5.107	5.076	4.917	4.734	4.724	4.642	4.363	4.379	4.710	5.089	5.045	5.194	1901	3.152	3.140	3.141	3.151	3.178	3.172	3.190	3.208	3.217	3.219	3.200	3.205
1865	5.401	5.562	5.860	5.957	5.935	6.190	6.086	6.121	6.166	6.247	6.353	6.408	1902	3.198	3.197	3.201	3.200	3.217	3.234	3.252	3.271	3.290	3.325	3.339	3.364
1866	6.491	6.534	6.607	6.558	6.434	6.400	6.311	6.259	6.222	6.197	6.160	6.259	1903	3.362	3.380	3.427	3.462	3.451	3.486	3.532	3.578	3.586	3.554	3.530	3.542
1867	6.288	6.307	6.317	6.364	6.380	6.375	6.259	6.245	6.257	6.330	6.390	6.415	1904	3.537	3.550	3.565	3.549	3.539	3.522	3.491	3.484	3.490	3.487	3.480	3.473
1868	6.312	6.239	6.216	6.245	6.199	6.176	6.169	6.183	6.245	6.308	6.380	6.437	1905	3.449	3.441	3.453	3.461	3.467	3.464	3.455	3.458	3.455	3.460	3.483	3.491
1869	6.439	6.449	6.494	6.518	6.428	6.418	6.483	6.471	6.545	6.639	6.676	6.717	1906	3.482	3.499	3.529	3.545	3.559	3.547	3.558	3.576	3.600	3.588	3.581	3.594
1870	6.651	6.451	6.371	6.403	6.350	6.304	6.297	6.368	6.394	6.412	6.431	6.468	1907	3.602	3.621	3.683	3.681	3.700	3.745	3.742	3.791	3.840	3.909	4.062	3.959
1871	6.418	6.383	6.369	6.355	6.312	6.307	6.301	6.270	6.250	6.368	6.412	6.359	1908	3.820	3.810	3.841	3.814	3.814	3.779	3.777	3.757	3.720	3.693	3.686	3.657
1872	6.174	6.139	6.213	6.199	6.196	6.155	6.074	6.131	6.189	6.224	6.262	6.266	1909	3.625	3.605	3.620	3.627	3.628	3.648	3.648	3.662	3.685	3.702	3.719	3.727
1873	6.190	6.166	6.170	6.187	6.160	6.118	6.062	6.062	6.166	6.486	6.497	6.304	1910	3.732	3.739	3.761	3.804	3.824	3.842	3.866	3.863	3.820	3.801	3.830	3.829
1874	6.080	5.979	5.966	5.943	5.985	5.927	5.921	5.906	5.872	5.809	5.720	5.703	1911	3.823	3.827	3.842	3.840	3.829	3.839	3.844	3.857	3.873	3.866	3.847	3.853
1875	5.631	5.595	5.573	5.499	5.458	5.480	5.425	5.410	5.369	5.400	5.360	5.299	1912	3.846	3.837	3.852	3.860	3.865	3.876	3.885	3.905	3.923	3.919	3.917	3.931
1876	5.243	5.188	5.152	5.177	5.204	5.178	5.117	5.089	5.117	5.175	5.165	5.165	1913	3.916	3.930	3.992	4.037	4.083	4.127	4.124	4.083	4.045	4.078	4.128	4.138
1877	5.135	5.172	5.247	5.260	5.220	5.159	5.112	5.143	5.164	5.193	5.182	5.149	1914	4.062	3.998	4.016	4.014	4.012	4.000	4.041	Exchanges closed				4.225
1878	5.152	5.149	5.156	5.157	5.127	5.069	5.069	5.105	5.103	5.079	5.043	5.026	1915	4.166	4.158	4.187	4.145	4.152	4.182	4.243	4.274	4.285	4.192	4.064	4.048
1879	4.922	4.789	4.869	4.870	4.758	4.715	4.673	4.668	4.751	4.739	4.720	4.720	1916	4.032	4.019	4.032	4.047	4.055	4.060	4.070	4.086	4.074	4.020	3.984	3.985
1880	4.643	4.585	4.571	4.580	4.572	4.535	4.463	4.417	4.486	4.344	4.243	4.243	1917	3.923	3.988	4.026	4.121	4.236	4.282	4.322	4.354	4.440	4.486	4.615	4.695
1881	4.137	4.181	4.224	4.209	4.099	4.036	4.038	4.071	4.147	4.189	4.168	4.168	1918	4.661	4.612	4.676	4.732	4.664	4.718	4.773	4.773	4.824	4.705	4.422	4.440
1882	4.214	4.236	4.192	4.192	4.170	4.174	4.159	4.190	4.208	4.200	4.221	4.192	1919	4.527	4.570	4.625	4.669	4.620	4.617	4.676	4.637	4.874	4.746	4.869	4.927
1883	4.185	4.217	4.234	4.216	4.213	4.211	4.210	4.243	4.249	4.240	4.210	4.192	1920	4.907	5.073	5.073	5.265	5.487	5.443	5.411	5.247	5.063	4.905	4.987	5.149
1884	4.163	4.120	4.087	4.063	4.140	4.239	4.252	4.187	4.195	4.190	4.196	4.159	1921	4.974	4.997	5.057	5.091	5.109	5.238	5.103	5.021	4.949	4.933	4.726	4.591
1885	4.113	4.079	4.042	4.033	4.017	3.967	3.939	3.931	3.918	3.880	3.853	3.833	1922	4.506	4.513	4.475	4.393	4.372	4.370	4.291	4.251	4.242	4.355	4.439	4.429
1886	3.768	3.703	3.690	3.700	3.697	3.667	3.638	3.648	3.703	3.703	3.702	3.726	1923	4.431	4.467	4.595	4.625	4.555	4.576	4.590	4.568	4.610	4.633	4.605	4.623
1887	3.703	3.710	3.725	3.729	3.715	3.718	3.735	3.765	3.835	3.859	3.821	3.803	1924	4.586	4.606	4.613	4.584	4.539	4.475	4.423	4.464	4.462	4.441	4.449	4.485
1888	3.742	3.716	3.732	3.731	3.712	3.690	3.644	3.637	3.664	3.671	3.655	3.643	1925	4.479	4.467	4.453	4.441	4.391	4.397	4.445	4.501	4.463	4.480	4.466	4.433
1889	3.599	3.559	3.565	3.557	3.516	3.476	3.496	3.506	3.512	3.551	3.583	3.597	1926	4.396	4.364	4.372	4.317	4.285	4.287	4.314	4.328	4.326	4.321	4.285	4.271
1890	3.584	3.588	3.607	3.611	3.613	3.632	3.645	3.681	3.705	3.733	3.784	3.832	1927	4.243	4.243	4.205	4.154	4.149	4.182	4.188	4.150	4.115	4.071	4.023	4.003
1891	3.747	3.750	3.800	3.816	3.849	3.901	3.899	3.901	3.883	3.848	3.823	3.789	1928	4.008	4.031	4.035	4.057	4.101	4.192	4.262	4.319	4.266	4.261	4.223	4.296
1892	3.749	3.726	3.734	3.720	3.701	3.689	3.679	3.687	3.725	3.724	3.732	3.746	1929	4.329	4.371	4.426	4.411	4.430	4.478	4.497	4.497	4.527	4.469	4.415	4.338
1893	3.726	3.697	3.727	3.731	3.775	3.836	3.962	4.056	3.950	3.878	3.791	3.734	1930	4.340	4.358	4.276	4.292	4.278	4.255	4.210	4.161	4.111	4.144	4.218	