

## 「Taylor Collection」について<sup>(1)</sup>

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### 目 次

- I. 序言
- II. Taylor Collection
- III. 結言

### I. 序 言

科学的管理法 (Scientific Management) の始祖とされる, F.W. Taylor の足跡は後に掲げるように, 非常に広範な領域に及ぶものである. このことは本稿で特に解説を付す必要のあるものではなく, 前世紀末から今世紀初頭における米国の「プロGRESS・エラ」を中核として今日に至るまで, 経営史・管理論史はいうまでもなく, 経済史, 社会史, あるいは労働史の諸研究の内に膨大な蓄積を誇っており, 「Taylorism」と呼称されることに明らかである.

本稿は, 管理会計の概念的生成を問う際に不可欠な史的資料のアーカイブである「Taylor Collection」の一端を示すものである. 管理会計の史的展開過程を議論するにあたり, いわゆる科学的管理システムと原価管理, とりわけ標準原価と企業予算の生成の関係性を問うことは, これまで多数の当該領域研究者の一致するところである.

科学的管理システムを担った幾多の能率技師 (Efficiency Engineers) が 19世紀末から今世紀初頭にかけて, インダストリアル・エンジニアリング (IE) のアプリケーションとして, 会計, 原価および組織管理問題にその

矛先を向け、管理会計における基軸である「標準原価」ならびに「予算管理」の生成に多大の恩恵をもたらした、ことがその内容である。

これらの議論の要点は、科学的管理をシステムとして捉え、科学的管理法の協働者達が「米国機械技師協会 (A. S. M. E.) 誌」、「テイラー協会誌」、「Industrial Engineering」「Engineering Magazine」、「Management Engineering」等の雑誌に掲載された実務を理論として精緻化してきたものであり、Taylor 自身の管理実践を彼以後の理論的・実務的展開との連関を直截に分析したものではなかった。これまでの諸研究は極少数の例外 Epstein [1978] Chen [1980] を除き、Taylor Collection に集積されている一次資料の所在に言及することはあっても、彼が実務に反映させたシステムの全容と原価計算および原価管理に関する評価を分析することはなかったのである。

筆者の当面の関心である管理会計における「管理概念」の再構築に向けての準備作業からすれば、Taylor 理論の一次資料である、当コレクションの吟味を等閑視することは当該作業の不完全さを表明することにつながるものである。

## II . Taylor Collection

Stevens 工科大学に Taylor Collection が設置された理由の過半には、Taylor が当大学（当時は専門学校）に通信教育部の学生として在籍していたことにある。1933年に彼の卒業50周年を記念して、家族・友人・協働者から種々の手紙、書類、図表類を寄贈されたことから、Collection の整備が開始され、その後未亡人の死去に伴ない、手元に残されていた論文集等が再度収蔵されることになり現在の Collection としての完成となったようである。

ここでは、Collection の概要を、Hayward [1951] にもとづいて示し、特に会計管理システムと原価計算システムに関する彼の思考と実践についての資料については、細目まで掲載する。

Collection は Part I-Frederick Winslow Taylor, Part II-Scientific Management Section A, Section B, Section C, Part III-Scientific Management System の三部に大別されている。

Part I では1856年～1915年に至る来歴の中で、主として私的な活動についての資料が整理されている。特に末尾に分類されている、周知の「科学的管理と鉄道運賃設定に関する公聴会」の記録では、彼の友人宛私信の中で漏らしている独白は、自分の信念に対する誤解を嘆いており非常に興味をそそられるところである。

## Part I

Articles

Associations and Societies

Belting

Biographical Material

Books and Papers, Book Plate

Books and Papers-Translations

Boxly (Taylor Residence)

Cartoons

Catalogues

Certificates

Classifications

Clients

Clippings

Colleges and Universities

Concrete

Correspondents

Degrees

Dinries

Employment

Engineering Education

Golf

Graduating Thesis

Grinding

Horticulture

Indexes

Lectures and Addresses

Letters

License

Medals

Memorial Material

Metric System

, Model

Notebooks

Patent Correspondence

Patents

Patents-Agreements,

Applications, Assignments, License Agreements

Phi Beta Kappa

Photographs

Portrait

Profit Sharing

Publishers

Shoveling

Stamp Album

Steam Hammer

Tennis

Tool Steel

Tool Steel Correspondence, Tool Steel Experiments

Tools

Trade Papers

Vase

Interstate Commerce Commission

Railroad Freight Rate Hearings, 1910-1911

Part II, Section A では科学的管理に関する論文集と全米にわたる Taylor と彼の協働者達による各産業への科学的管理システム導入の報告書が集積されている。諸外国、教育機関、政府機関、陸軍および海軍がその対象である。Section C では科学的管理システムのコアである工場管理システム (Shop Management) の運用に関する1911年~12年ならびに1914年から15年にかけて実施された産業実態に関する連邦調査委員会の各種データが整理されている。私信では Consulting Engineer として特許に対する異常なまでの関心が見られる反面、科学的管理システムの企業実務への導入を盛んに推進する H. Emerson への猛烈な反駁が印象的である。

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Correspondence with:

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E. Gower Guthrie	1913-1914
Royal R. Keely	1911-1915
E. Nusbaumer	1913-1914
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Correspondence with: period of Correspondence

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Aultman Co.	1902-1903
Barcalo Manufacturing Co.	1912
Cheney Brothers	1911

Columbus Buggy Co.	1910
Fales, L. F.	1910
Ferracute Machine Co.	1903-1913
Filene's (Wm.) Sons co.	1911
McElwain (W. H.) Co.	1909-1910
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WOMEN'S COLLEGES

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#### —Chain Making

PHOTOGRAPHS of chain making in the Boston Navy Yard, 1915.

#### —Naval Constructors

### Section C

### SCIENTIFIC MANAGEMENT AND LABOR

#### —Investigations

THE TAYLOR AND OTHER SYSTEMS OF SHOP MANAGEMENT, 1911-1912. Correspondence with Committee members and others re testifying Hearings before a Special Committee of the House of Representatives (3 vols.) Report of the Special Committee to Investigate the Taylor and Other Systems of Shop Management Taylor's Testimony (manuscript) Reprinted in full in *the Bulletin of the Taylor Society*, Vol. XI, Nos. 3 and 4, 1926.

SCIENTIFIC MANACEMENT AND LABOR Investigation by the U. S. Commission on Industrial Relations, 1914-1915. Correspondence: Re Hearings, R. F. Hoxie. Hoxie Questionnaire, Schedules 1-X-Labor Leaders Correspondence: Samuel Gompers, 1911, A. J. Portenar, 1914.

#### —Trade-Union Relations

THE AOTHESIS OF LABOR, by Theodore B. Stork, (Manuscript-undat-

ed) Clippings, 1895-1911.

ELIMINATION OF WASTE CONFERENCE, Philadelphia, April 9 and 10, 1927. Report of Conference published in *the Journal of Electrical Workers & Operators*. May, 1927.

INTERNATIONAL ASSOCIATION OF MACHINISTS, Official Circular No. 12, April 26, 1911.

ORGANIZED LABOR'S ATTITUDE TOWARD SCIENTIFIC MANAGEMENT, by Clinton S. Golden. Society for Advancement of Management, Philadelphia Chapter, Transcription of meeting, March 12, 1940.

THE TAYLOR SYSTEM OF SCIENTIFIC SHOP MANAGEMENT, Report by the Executive Board, Wisconsin State Federation of Labor, April, 1914.

UNION LABOR AND THE ENLIGHTENED EMPLOYER, by Samuel Gompers. *Industrial Management, The Engineering Magazine*. April 1, 1921. (30th Anniversary Number) See also: Articles Papers (Societies)

## SCIENTIFIC MANAGEMENT CONFERENCES

### —Dartmouth

First Conference on Scientific Management, held at the Amos Tuck School, Dartmouth College, October, 1911.

### —Western Economic Society

The Western Economic Society Conference on Scientific Management, Chicago, March 14 and 15, 1913.

## SCIENTIFIC MANAGEMENT CONGRESSES

—First International

First International Management Congress, Prague, July, 1924.

—Third International

Third International Congress of Scientific Management, Rome, September, 1927.

—Fourth International

Fourth International Congress of Scientific Management, Paris, June, 1929.

—Second Polish

Second Polish Congress of Scientific Management, Warsaw, May, 1928.

Part III では Taylor の構想による、科学的管理システムの管理部門および製造部門への導入事例が整理されている。計画部門の設定を嚆矢として、シンボリック・システムを利用した生産管理システムが適用され、特に倉庫・資材部門における能率の向上を確保するプロセスが詳細に提示されている。原価計算ならびに会計システムに関連した資料では特に標準作業時間の設定（課業管理）に関連させた製造間接費の計算が企画されている。Taylor の簿記・会計に対する知識はほぼ独学による習得の結果と推測されるが、奇異に思われるのは、数多くの私信の中でも彼の協働者である技師から発せられた科学的管理システムにおける原価計算の導入についての度重なる質問に応じることがなかったことである。

**Part III****ACCOUNTING****BOOKKEEPING FORMS****BALANCE CLERK, Instructions and Duties**



BOOKKEEPING UNDER THE TAYLOR SYSTEM

Original description written by F. W. Taylor about 1893, of a system of book-keeping developed for a paper mill. Notes and correspondence

TAYLOR'S INTERLOCKING COST AND ACCOUNTING SYSTEM

Letter from William D. Basley, expert railroad accountant, outlining his method of keeping books, July 12, 1893.

ASSEMBLING

CLASSIFICATION

— Belting

— Cost Keeping

TABOR MANUFACTURING Co.

Symbolized Card of Accounts

Write-up of a fully developed classification of internal charge accounts (card of account)

— Expense

BETHLEHEM STEEL Co.

Taylor System of Expense Classification and Symbolization for the Bethlehem Steel Co.

SAMPLE OF MASTER CLASSIFICATION

SHEET for Both Direct and Indirect Expenses of a Plant

— Forged Material

BETHLEHEM STEEL Co. Classification of Forged Material

— Industry

CLOTHING

Three classifications for the men's garment (clothing) industry, by  
Keppele Hall, 1920:

- a . Machine and Work Place
- b . Stores
- c . Worked Material (Product)

#### PAPER

Classification of: Paper

Paper Grades and Finishes

#### PRINTING

Classification of expenses and functions in a printing plant (Forbes  
Lithograph Co.)

Charging

Stores

Tools

Worked Materials and List of Operation Symbols

—Stores

BETHLEHEM STEEL Co. Miscellaneous Classified Stores

FRANKLIN (H. H.) MANUFACTURING Co. Miscellaneous Stores

GENERAL CLASSIFICATION OF STORES (Diagramatic)

MATERIAL SYMBOLS, Examples of (Diagramatic)

SAMPLES OF MASTER SHEETS for Miscellaneous Classified Stores  
for a Variety of Uses

TABOR MANUFACTURING Co. Symbolized Classification of Stores for a  
Variety of Uses

#### —TOOLS

BETHLEHEM STEEL Co.

System of Classifying Tools, proposed September 1, 1899—corrected to January 1, 1901.

TABOR MANUFACTURING Co. Classification of Tools  
TOOLS CLASSIFICATION

—Worked Materials

TABOR MANUFACTURING Co.  
Classification of Worked Materials

### **COST KEEPING**

—Cost Sheet

COMPLETE COST SHEET

—Expense Distribution

EXPENSE DISTRIBUTION SHEETS

—Instructions

DUTIES of the Shop Time-Keeper  
INSTRUCTIONS to Office Time-Keepers  
INSTRUCTIONS to the Cost Clerk

—Payrolls

SAMPLES Of payroll sheets

—Sorting Tray

TAYLOR'S OVERHEAD SORTING TRAY  
HIGH DESK designed by F. W. Taylor particularly for use with overhead sorting trays

—Time and Pay

RECORD of time worked and wages advanced on piecework, premium and bonus job and Pay

**DRAFTING**

BILL OF MATERIAL prepared by the Engineering Department

**FUNCTIONAL FOREMEN**

**MAINTENANCE**

—Boilers

STANDING ORDERS covering the inspection, cleaning and maintenance of boilers (Midvale Steel Co.)

—Oiling

DESCRIPTION OF SYSTEM OF OILING MACHINES, etc., in the Works of the Midvale Steel Co., June 16, 1885.

**ORGANIZATION**

FIRST COMPREHENSIVE DIAGRAM of a Taylor System Organization as originally planned for the Smith & Furbush Machine Co.

FUNCTIONAL PLAN OF ORGANIZATION at Bethlehem Steel Co. Fred W. Taylor's original chart

TAYLOR SYSTEM, GENERAL ORGANIZATION Chart, March 29, 1923.

**PIECE RATES**

CORRESPONDENCE regarding the piece-rate system:

Canadian Composing Co., Ltd.,

The Gates Iron Works

Leven Ship Yard

Stephenson (John) Co. Wells & French Co.

Western Electric Co.

## DIFFERENTIAL PIECE RATES

Samples of sheets used in estimating from previously made time studies, the total time on which to base differential piece rates for executing a piece of work on a planer, a slotter, and a boring mill, at the Midvale Steel Co., July 16, 1887.

A PIECE-RATE SYSTEM, by Frederick W. Taylor.

A paper presented at the Detroit Meeting of the American Society of Mechanical Engineers, June, 1895.

## PLANNING DEPARTMENT

PHOTOGRAPHS of a small planning department and a very large one

— Boards

CONTROL BOARD

FILE BOARDS for Route Sheets, Balance of Stores Sheets, etc., kept in the Planning Department Cabinet for File Boards

GANG BOSS BOARD (Taylor's original Shop Board)

MEN'S BOARD

— Forms

JOB CARD forms, MANUFACTURING ORDER form

— Instruction Cards

INSTRUCTION CARD for a drill press operation on a small lot of similar pieces

— Routing

DIAGRAM OF FUNCTIONALIZED ROUTING, April 23, 1915.

ROUTE FILE in the pockets of which were stored the various Job Cards, Material Issues, Routing Tags, Move Cards, Instruction Cards, etc., until the work was actually to be started in the shop

ROUTE FILE used at Tabor Manufacturing Co.

**ROUTESHEETS**

ROUTING-Various types of Attendance Racks, Job Card Racks and Routing Boards and Boxes SPECIAL TAYLOR combination foundry order, pattern record, and routing tag for a casting See also: Scientific Management in Industry

—Tickler

TICKLER ORDER Follow-up System (Early example)

**PURCHASING**

—Forms

PURCHASE ORDER forms

**RATES**

MANUFACTURING INVESTMENT Co. Table of Rates

ONE OF TAYLOR'S EARLIEST RECORDS OF RATES SET BY TIME STUDY, December 31, 1887.

**ROUTING**

**SALES**

—Forms

SALES ORDER form

PARTIAL SHIPPING ORDER made out by the Production Department  
SHIPPING ORDER issued by the Sales Office upon receipt of a Sales Order

**SHOPS**

DEVELOPMENTS IN MACHINE SHOP PRACTICE DURING THE LAST DECADE. Report of Sub-Committee on Machine Shop Practice. *American Society of Mechanical Engineers, Transactions* (No, 1367), 1912.

STANDARD TOOL RACK, sometimes referred to as a Work in Progress Bench, with a description of the various parts (Electrotype cut)

### STANDARD PRACTICE

B 1 A—Bookkeeping Under the Taylor System

—Classification (F)

F 1 — Classification of Departmental Charges

F 2 — Classification of Worked Materials

F 3 — Stores (Purchased Materials)

F 4 — Machine Tool Classification

F 5 — Explanation of Tool Classification

—Cost Keeping (AC)

A 1 C—Cost Keeping Under the Taylor System

—Drafting (BD)

B 1 D—Standing Order for the Drawing Room

B 2 D—Bill of Material

B 3 D—Clerical Duties in B. D.

—Functional Foremen (DMA)

DM 1 A—Duties of Gang Boss

DM 2 A—Standing Order for a Speed Boss

DM 3 A—Duties of Repair Boss

DM 4 A—Duties of Inspector

—Maintenance (AM)

- A 1 M—Standing Order for Maintenance Department
- A 2 M—Duties of Repair Boss
- A 3 M—Routine for Millwright
- A 4 M—Standing Order for Janitor No. 3
- A 5 M—Standing Order for Oiler and Belt Man
- A 6 M—Cleaning Machines and Bonus Time for Same
- A 7 M—Care and Maintenance of Belting
- A 8 M—Standing Order for Reporting Belt Failures
- Pay and Timekeeping System (AT)
- A 1 T—Routine and Bonus for Time Clerk
- A 2 T—Bonus for Time Study Clerk
- A 3 T—Bonus Payments: Speed Boss, Gang Boss and Move-Men, Gang Bosses, Tool Room Attendants, etc., New Men
- Planning (AP)
- A 1 P—How to Make Out Manufacturing Orders
- A 2 P—Routine for Route Clerk
- A 3 P—Duties of Balance of Stores Clerk
- A 4 P—Duties of Route File Clerk
- A 5 P—Standing Order for Order of Work Clerk
- A 6 P—Standing Order for Librarian
- A 7 P—Standing Order for Recording Clerk
- A 8 P—Standing Order for Issue and Recall of Instruction Cards, Tool Lists and Drawings
- A 9 P—How to Make Out Damage Reports
- Purchasing and Auditing (BP)
- B 1 P—Routine To Be Followed by the Purchasing Agent



B 2 P—Requisitions for and the Purchase of Supplies

B 3 P—Approval of Bills by the Auditor

—Sales

C 1—Shipping Orders

C 2—Follow-Up System of the Sales Department

—Storekeeping (AS)

A 1 S—Standing Order for Store Room

A 2 S—Routine for Surplus Stock

A 3 S—Standing Order for the Assembling Department Stock Keeper

—Tool Room (AX)

A 1 X—Standing Order for Tool Room

### **STANDING ORDERS**

American Society of Mechanical Engineers, standing Order File, 1906-1907.

### **STOREKEEPING**

Diagram of Purchasing and Receiving of Stores, June 25, 1915.

—Assembling

### **ASSEMBLING CHARTS**

—Forms

ISSUE OF MATERIAL Six different forms used to identify an issue of material for a storeroom

STORES ISSUED CARDS (Stock Requisition)

WORKED MATERIALS Balance of Worked Materials sheet  
Worked Materials Issued  
Worked Materials Received in Stores

—Records

BALANCE OF STORES sheet (Stock Ledger sheet)  
STOREKEEPING RECORDS (Early examples)

—Storage

STORAGE BINS

Various examples of storage bins based on the Taylor Standard Storage Rack

**STORES**

CLASSIFICATION OF STORES, by Carl G. Barth. A lecture delivered November 30, 1915.

NOTES on address on Stores given before the Scientific Management Club, by Morris L. Cooke-no date.

**TIME STUDY**

—Company

BETHLEHEM STEEL COMPANY

Records of time studies made in connection with the setting of piece rates Work Done by Two Extraordinary Laborers in Carrying Pig Iron

LINK-BELT COMPANY

Observations of Hand Work on Machine Tools Time for Putting Work in

Centres

Time for Setting Drills

Time for Setting Facing Tools (Roughing and Finishing)

MIDVALE STEEL COMPANY

Sample of original time study sheet used by F. W. Taylor, dated January 24, 1884.

Time allowed a worker for specific operations performed in connection with covering pipe fittings, valves and pipe lines-no date.

TABOR MANUFACTURING COMPANY

Taylor System Elementary Unit Time-Data Sheets for various operations, based on observations made at Tabor (26 blueprints)

—Forging Operation

One of Taylor's earliest records of rates set by time study, December 31, 1887.

—General

TIME STUDY, MAJOR CHARACTERISTICS OF THE TAYLOR TECHNIQUE, by Dwight V. Merrick. A paper presented at a meeting of the Taylor Society, Detroit, May 7, 1928.

TIME STUDY AND TASK WORK, by Sanford E. Thompson, Reprint from *the Journal of Political Economy*, May, 1913.

TIME STUDY DATA WATCH BOARD (Time Study Board)

WATCH BOARD With note sheets used in making time studies of construction work during the time that Mr. Sanford E. Thompson was associated with Mr. Taylor, and some sheets showing how the data was worked up from these note sheets

WATCH BOOK used for making time studies with or without the

knowledge of the operator

—Industry

CLOTHING INDUSTRY Diagrammatic Description of the Operations on a Man's Coat, 1920.

Pen sketches and description of the 141 operations required, made by Morris Greenberg as a preliminary to time study and in an effort to standardize practice as between different cities and throughout the industry.

HANDKERCHIEF INDUSTRY

Boxing Times Pressing Times Spanning Times Stitching Times  
Miscellaneous Observation Sheets

PRINTING INDUSTRY

Time Study Data on Gold-Leaf Laying (at The Plimpton Press), by Sanford E. Thompson, 1911. From this data, tasks on goldleaf laying were set out on any book cover made in this plant with an output of 40,000 books a day.

**TIME AND PAY**

**TOOLS**

—Issue

BLANK TOOL LIST with names of tools frequently used printed in  
LIST OF TOOLS designated by symbols

TOOL CHECK SYSTEM for the control of tools

—Storage

TABOR MANUFACTURING Co. Electrotpe Cuts:

Panel for the storage of milling cutters

Storage rack, showing a combination of drawers and compart-

ments to accommodate all sizes of tools

Storage racks for small tools

### Ⅲ．結 言

Kanigel [1997] の大著 “The One Best Way” に「Taylor と能率の不可解さ」と副題が付されている。これまでの科学的な管理、能率、課業管理および Taylorism の分析とは画然とした、時代を反映する人物としてその業績を纏めている。Johnson = Kaplan [1987] の管理会計、とりわけ原価管理機能の企業実務に対する有効性の喪失を指摘するまでもなく、能率と生産性向上への飽くなき探求は、「品質管理」に代弁される現代的な要求の内に潜む本源的思考というべきであろう。

ここでは二様の方向を指摘しておきたい。管理会計の史的展開過程において、システムとしての科学的な管理をどのような論理で内在させることが可能なのか、今一つはそのことが原価計算における管理機能の補完的役割を認知させようとする事なのか、である。

Taylor Collection に集積されている資料への詳細な論及は別の機会に譲るとしても、管理会計の史的な分析が当該領域の今日の問題に対して果たすべき任務を常に自問せざるを得ないことは他と同様である。

#### 《注》

- (1) 当コレクションに所蔵される大量の貴重な資料を、筆者の気盛な求めに応じて快く、閲覧および photo copy のサービスを提供して頂いた、Stevens Institute of Technology (Hoboken, NJ.) の Library のスタッフならびに当コレクションの Executive Director である、Nidya Cruz 女史に深甚の謝意を表すものである。なお、当工科大学の所在地はマンハッタンを挟んでハドソン河の対岸の高台に位置し、NY の金融センターを新たな視点で望遠できる風光明媚な場所であることを付記しておく。

## 《参照文献》

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