# FILE 678

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# ( MOST J.A. WADDELL,

# CONSULTING ENGINEER )

*Inter-department Correspondence*

McGILL UNIVERSITY

Nothing to this at all.

See Dean Brown's letter June 6th.

See Sir Arthur's put off letter to Dr.Waddell, he would not even write Waddell himself; I did it and referred him to Brown. The man is 80 years of age and just childish keep on putting him off.

D.McM

WADDELL & HARDESTY
CONSULTING ENGINEERS

J. A. L. WADDELL, D. E., LL. D.
SHORTRIDGE HARDESTY, LL. D., C. E.

CABLE ADDRESS: WADDELLJE
CODES: WESTERN UNION AND A. B. C.

142 MAIDEN LANE
NEW YORK

Jan. 11, 1934.

The Honorable,
The Board of Direction of
McGill University,
Montreal, Canada.

Gentlemen:

It was not until after my return a short time ago from a month's visit to Puerto Rico that I heard the sad news of Sir Arthur Currie's death. His passing a quarter of a century too soon constitutes an irremediable loss to our University, the Dominion of Canada, and the U.S.A. — in fact to the entire world of science and education.

I had hoped that he would find time to join me in the great work that I have undertaken for the American Association of Engineers on "Vocational Guidance in Engineering Lines." Before our book bearing that title was issued, I had a very satisfactory talk with him on the subject; and he asked me to take up the matter with him again later on. An unavoidable volte face in our policy of publication obviated the necessity of our acting together on the old basis; but some months ago I wrote him a letter suggesting that McGill University undertake in Canada to bring the book to the attention of high school students there in the same manner that the American Association of Engineers is arranging to bring it to the attention of such students in this country.

My letter was received during Sir Arthur's absence abroad; and after his return he did not reply. I am sending herewith a copy of it. Enclosed are a few papers that will explain the nature and extent of our strictly altruistic undertaking. The circular to the members of the Society for the Promotion of Engineering Education, issued a few days ago, will give you an indication of the enthusiastic reception that our treatise has received both at home and abroad.

As one of McGill's oldest living graduates, and as a Canadian-born engineer, I ask that the preceding suggestion be given due consideration by our University, and that I be notified of the result thereof. If more data be needed, I can supply them.

Respectfully and faithfully yours,

JALW-KEP

J. A. L. Waddell.

WADDELL & HARDESTY
142 MAIDEN LANE
NEW YORK

July 5, 1933.

Sir Arthur Currie,
McGill University,
Montreal, Canada.

Dear Sir Arthur:

Some two months ago there was sent to you a copy of "Vocational Guidance in Engineering Lines," which you were so kind as to endorse in advance. You may remember that I had a talk with you one night in New York about McGill University undertaking to bring this book to the attention of high school students and other preparatory school students throughout Canada.

At that time the conditions about publishing were quite different from those that developed later. First of all, I would ask whether you think it would be worth while for the benefit of Canada and the Engineering Profession ~~in~~ in the Dominion to induce high school students to read our book. Second, whether you think McGill University would father the project.

I had originally thought of having electrotypes of our book made and sent to you to use, but the deal we made with the printers would prevent that, and now the best that I could offer would be to ship the books in bulk to Canada, freight charges prepaid, at a reduced rate.

If you are interested in this matter, I can send you a lot of papers explaining what we are doing on this side of the line, and write you at length.

With kindest regards and best wishes, I am

Yours very sincerely,

JALW-KEP

142 Maiden Lane,
New York, N. Y.,.
August 1st, 1933.

To the Engineers of

Gentlemen:

The American Association of Engineers has been endeavoring for some seven years past to elicit and edit a book on "Vocational Guidance in Engineering Lines," and succeeded in so doing last May. The book, which is for sale by The Mack Printing Company of Easton, Pa., and the Association's headquarters in the Willoughby Tower, Chicago, is the work of half a hundred authors, composed of leading engineers in all the main lines and the important specialties of the profession. The project has been explained officially by the A.A.E. in one of the Editorial Committee's reports as follows:

A. The undertaking is on an absolutely altruistic basis, for nobody except the printer of the book (who is temporarily its publisher) will make a single dollar out of the enterprise.

B. The project is not confined merely to placing a most useful treatise on the market at unusually low prices (viz., single copies, postpaid, in the U.S.A. and Canada $2.50, and $3.00 elsewhere, with a reduction of 25¢ per copy for bulk orders of five to nine copies and 50¢ per copy for larger bulk orders, including transportation); but it will include also the bringing of the book by lectures, annually for a period of ten years, to the attention of the students in practically all of the worth-while high schools and other preparatory schools in the principal centers of population of the U.S.A. These lectures are to be given by local engineers of the said centers on the subject of "The Engineering Profession" with the book in hand. The formation of these lecture groups was started two or three months ago by the Association's standing Committee on Engineering Education; and the work thereon will be continued by both it and the Board of Direction until the list of chairmen of the said lecture groups is complete. It is the policy of the Association to leave entirely to these chairmen the selection and number of the members of the said groups and also the modus agendi of lecturing; but they will be furnished with some printed matter containing a few pointers about the work, which they may utilize as they see fit, also with one or two copies of the treatise.

While the members of the various chapters of the Association (scattered all over the United States) will be expected to "do their bit" on this lecturing, engineers in the various lines of activity who do not belong thereto will be asked to serve on these lecture groups. This is as it should be, because the book treats of all the main divisions and most of the recognized specialties of technical activity.

C. The principal objects of the undertaking are as follows:

First. To encourage the brightest, most active, most ambitious, and most suitable of the youth of our country to come into the Engineering Profession, and to discourage from attempting to enter it the indolent, unambitious, unintellectual, and otherwise incompetent or undesirable young men.

Second. To provide for the students in our technical schools a treatise that will describe in full detail the profession of which they are striving to become members, and at the same time to put before them numerous examples of unusually fine engineering English, in order to serve them as models for their future techno-literary work.

Third. To furnish the faculties of American engineering schools with a fund of information about the profession they are teaching, only a portion of which is now known to any of them individually - which information they should be able to use to great advantage in their pedagogic work.

Fourth. To provide some 500 pages of truly interesting, instructive, and useful reading matter for every engineer in our land who is willing to take the time to peruse the volume; because there is absolutely no one person who now possesses all of the information it contains, unless he has read the book.

Fifth. To give the general public an opportunity to correct the impression it has concerning the Engineering Profession, and to teach it that a professional engineer is not a man who drives a locomotive or operates a stationary engine.

Sixth. To keep the square pegs out of round holes and vice versa, and thus prevent a great number of young men from making failures of their lives, and from developing in their minds an inferiority complex because of having flunked out of a technical school.

Seventh. To save a vast sum of money each year by preventing a large number of young men who are unsuited for technical careers from attempting to study engineering. The magnitude of this saving will be understood when one considers that about one-half of the entering engineering freshmen are dropped out in the first year, that it costs in the neighborhood of one thousand dollars per annum for a young man to attend college, and that the institution has to spend at least that amount in its unsuccessful attempt to teach for a scholastic year a predestined flunkout. The amount of this annual saving of useless expenditure has been conservatively figured to be all of twenty million dollars.

Eighth. By keeping weaklings out of the freshman class, the men of higher mentality will make greater progress; because it is a well recognized fact that the slow-thinking, lazy, indifferent, and otherwise undesirable members of the class always hold back the better men, thus getting them also into lazy habits and preventing them from attaining to the maximum of their working capacity. The immediate result of such exclusion would be the including of more courses in the curriculum and the attainment of greater thoroughness and efficiency in the methods of teaching.

Ninth. To arouse in the minds of both engineering teachers and engineering students a far greater enthusiasm for the Engineering Profession than they have under present conditions. This result is likely to occur for two reasons - first, the writers of the various chapters of the book are themselves enthusiasts, and what they say is often of an exceedingly stirring and inspiring character; and, second, a thorough knowledge of what engineering in all its lines and ramifications really means must arouse the interests of all live men who have adopted it, or are contemplating adopting it, for their life work.

The preceding remarks apply to practising engineers as a whole as well as to technical teachers and students - and nobody can deny that the enhancing of the respect and liking of engineers in general for the profession of their choice would be a most important desideratum. One direct result of this would be to induce engineers to take an interest in civic and national affairs, and to assume their proper stations in society.

Tenth. The ultimate benefits of the work inaugurated by this movement of our Association will be to improve materially in a few years' time the quality and efficiency of the men in the graduating classes in engineering, and also later on these same characteristics among practising engineers.

D. While Vocational Guidance in Engineering Lines has been prepared primarily for the benefit of both the students and the Engineering Profession in the U.S.A., it can readily be made equally useful in Canada, and at least of some value in certain foreign countries (notably those of Latin America) - in any case to the extent of letting foreign engineers know how technical work is done in our country.

Some three hundred engineers, scattered all over the civilized world, have promised to review the treatise; and a few reviews have already come in, but it will require several months more to complete the collection. Later on there will be prepared and circulated various folders giving the "Opinions of the Profession and the Press," concerning the book; and the Lecture Groups will be liberally supplied with these folders.

In addition to the selection of the personnel of the Group and securing their promise to aid in the lecturing, the main duties of each Chairman would be as follows:

A. Listing all the important high schools and other preparatory schools of the district, calling on the principals thereof, and arranging with them for annual lectures on the Engineering Profession and the dates for their delivery.

B. Apportioning the lecture work each year to the different members of the Group, and seeing that each man does his duty.

C. Reporting annually to the Association's headquarters at Chicago concerning the lecturing already done by the Group and the program for the work of the coming year.

D. Reporting re cash expenditures, if any, connected with the lecturing.

E. Inducing each public library and each school library of the district to purchase several copies of the book, so that those who desire to read and study it can do so without having to buy a copy and without having to wait too long when borrowing one.

Generally speaking, each lecturer should be free to discourse as he sees fit, provided that he does not wander too far from his subject, viz., "The Engineering Profession."

A form of lecture has been prepared as a sample. This can be used directly if the lecturer so desire; but it would be far better to select the important topics it contains and treat them according to individual views and tastes - in any case, making frequent short quotations from the book. The object of the discourse should be to arouse the enthusiasm and curiosity of the hearers, so as to induce them to read and study the treatise - also to own a copy, in order to re-read it from time to time.

As at present the A.A.E. has no spare funds, and as it desires that the lecturers shall not have to spend any of their own money for traveling, it will be nec-

essary at first for each Group to confine its efforts to its own city and the neighboring towns that can readily be reached by automobile. Later, it is hoped, there will be an ample fund to care for all traveling expenses.

My object in writing you gentlemen is to ask that you get together, form a Lecture Group of engineers representing the various divisions of the profession for your city and its vicinity, select a chairman, and, after the schools open next September, start work on the lecture program.

In my opinion (and a large number of American engineers of prominence agree with me), this "Vocational Guidance" movement is, without exception, the most important organized step that has ever been taken to advance the interests of the Engineering Profession. Will not you gentlemen "do your bit" to make it a success?

Respectfully submitted,

J. A. L. Waddell

Chairman of the Committee on Engineering Education of the American Association of Engineers.

P. S. Copies of this communication have been sent to the following engineers in your city:

AMERICAN ASSOCIATION OF ENGINEERS
*National Headquarters*
EIGHTH FLOOR, WILLOUGHBY TOWER
CHICAGO

July 19, 1933.

General Sir Arthur Currie,
Principal and Vice-Chancellor,
McGill University,
Montreal, Canada.

Dear Sir:

We consider the letters of endorsement which we printed in the introductory section of our "Vocational Guidance in Engineering Lines" an invaluable part of the book, not only because of the prestige so conferred upon the whole undertaking, but because your letter, and a number of others in the group, summarized in happiest fashion the purpose of and necessity for such a project. Any reader who approaches our material with such an introduction is in precisely the attitude we consider essential for utmost benefit from the information we have assembled. We are tremendously grateful to you for having contributed to this success factor in our enterprise, and doubly so, because you had confidence in us sufficient to endorse the plan while the material was still in preparation.

We feel that the men who executed the plan outlined to you at that time did a workmanlike job. We are sure that your expression of appreciation of the purpose of the book was an inspiration to them, and we hope that they have justified your confidence by at least approximating the kind of publication you expected us to produce. Will you tell us frankly whether or not the book comes up to your expectations?

Yours very truly,

M. E. McIver,
Secretary.

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# A MESSAGE OF IMPORTANCE

## TO THE MEMBERS OF THE S.P.E.E.

BY

DR. J. A. L. WADDELL

Gentlemen:

Will you permit me, as one of the score of remaining charter members of our national educational organization, to make you a suggestion that, if adopted, would indubitably redound vastly to the advantage of yourselves, your students, and the entire engineering profession? I am assuming that your answer to this question will be in the affirmative; hence I shall proceed to tell you about what I have in mind.

Last May the American Association of Engineers issued a treatise entitled "Vocational Guidance in Engineering Lines." It provides an immense fund of information that should be invaluable for both teachers and students of engineering in all its branches, as well as for engineers in general. As its contents should be known to every American engineer, both young and old, it could be advantageously adopted as a textbook in technical schools, especially in view of the fine character of the English used throughout the work. It should be read and re-read by students and young engineers, and should be consulted whenever any question arises concerning the engineering profession.

In making these broad, sweeping statements, I know whereof I speak; for it was primarily due to my efforts as Chairman of the Committee on Technical Education of the A.A.E. that the numerous chapters were elicited and edited, and that the undertaking was financed and materialized.

My duties did not end with placing the book upon the market; because I am still working constantly to have it brought methodically once a year to the notice of the students in practically all the high schools and other preparatory schools of the U.S.A., in order that it may accomplish its worthy and vitally important purpose. All concerned in the undertaking are striving hard to find effective ways to put the treatise into circulation.

As you professors of engineering and your students should be among the first to benefit from the publication and wide distribution of our book, I ask that you "do your bit" to aid our altruistic cause. You may ask in what manner you can serve. If so, I should reply as follows:

*First.* Buy a copy of the book from The Mack Printing Company of Easton, Pa., $2.50 postpaid.
*Second.* Read it from cover to cover, and keep it for your personal library.
*Third.* Review it in as many newspapers or periodicals as you can.
*Fourth.* Recommend each public library in your city and its vicinity to purchase one or more copies for the use of the young men of the district.
*Fifth.* Speak to your friends and neighbors about the treatise, and recommend its perusal by the parents or guardians of any of their young acquaintances who contemplate studying for technical careers.
*Sixth.* Join the Lecture Group in your city, and do your share of the annual lecturing.
*Seventh.* Use your influence to have the treatise adopted as a textbook in your institution for the courses on "The Engineering Profession" and "Technical English."
*Eighth.* Think up possible ways and means of helping the project to become a great success, and notify our headquarters at Chicago thereof—in other words, put your heart into the work of aiding in the accomplishment of this important, philanthropic undertaking.

As before stated, the book is for sale by The Mack Printing Company of Easton, Pa. The price for single copies postpaid is $2.50; but when five or more copies can be shipped in bulk, the charge is reduced to $2.00 per copy.

The reviews are rapidly coming in; and from some of them I excerpt the following for your special benefit, in order to convince you of the world-wide approval that our absolutely altruistic enterprise is receiving.

In conclusion, I once more earnestly request your hearty coöperation in our undertaking. The amount of benefit that it can be made to accomplish for both our profession and our country is simply incalculable—it depends entirely upon how wholeheartedly American engineers and teachers of engineering are willing to work, in order to secure a wide distribution and use of the treatise.

Respectfully and faithfully yours,

J. A. L. WADDELL
Consulting Engineer.

# Opinions of the Profession and the Press

The literary quality of this book is a good example of technical writing to both student and teacher, and should stimulate them to follow such models in whatever writing may form a part of their own work. Older engineers in practice may read the book with profit to supplement their knowledge of certain subdivisions or specialties, and to emulate these writers when composing their own professional reports, or contributions to society transactions or periodicals.

That high-school students, who wish to make an intelligent choice of a vocation shall have no excuse for failing to obtain and read this book, the whole project is put upon an absolutely altruistic basis. Since its admirable contents are the fruit of so much concentrated time, thought, and energy, all so freely given and with such unselfish aims, this book should receive an appreciative welcome by educators and practicians alike, together with their hearty coöperation to speed the accomplishment of its mission.

HENRY S. JACOBY, Professor Emeritus of Bridge Engineering, Cornell University, in the *Journal of Engineering Education.*

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The writer knows of no encyclopedia, compendium, or series of essays, comparable with the monographs of the men collaborating in this altruistic undertaking. The writers of these monographs speak with the highest authority. Orrok on Mechanical Engineering, Dudley on Electrical Engineering, Wagner on Chemical Engineering, Brown on Military Engineering, Doty on Contracting Engineering, Kettering on Automotive Engineering, Wegmann on Dam Engineering, Grunsky on Municipal Engineering, Coleman on Port Engineering, Waddell himself on Research Engineering, Ridgway on Subway Engineering, and Loweth on Valuation Engineering—here are names to conjure with!

In inducing these leaders to tell young men—and the rest of us—the characteristic elements, processes, and advantages each of his specialty, Dr. Waddell has again demonstrated his love of youth and his love of his profession.

FRANCIS C. SHENEHON, Consulting Engineer.

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The information contained, the style, the literary merit, the clarity of expression, and the compactness of the work justify recommending the same to all who may be desirous of information upon the requirements and rewards of Engineering as a career.* * *

The writer strongly commends the work to the attention of educational authorities, students, and others interested in learning about the profession of Engineering, or in directing the selection of a career for a youth whose inherent qualifications justify choosing the difficult but satisfying profession wherein *he* gains most out of life who serves best the interests of human society.

Editor of *The American Engineer.*

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The tone of the book is excellent. Not alone in the chapter "Idealism in Engineering" but throughout the 550 pages, one finds sentiments expressed by these seasoned engineers and university professors that would be quite appropriate in ethical discussions.

From the standpoint of English, the book is exceedingly interesting. Naturally there could be no unified style, but the diction is good, and the contrasting types of expression of these engineers on their good behavior form an absorbing study.

PROF. M. L. DRUM in *Bucknell Alumni Monthly.*

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The editors and the contributing authors have produced a book on engineering which from the first page to the last is as interesting and as appealing to the minds of both young and old alike as the most fascinating novel.* * *

The editorial chapters are delightfully written, and in every line reflect the enthusiasm of the editors for the profession, for the personality of the engineer, and for the young people aspiring to become members of the profession. E. E. HALMOS in *Engineering News-Record.*

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The book is a diamond of exposition—every chapter a facet through which the reader sees each of the major divisions of engineering and specialties, many of which have developed in connection with fairly recent scientific achievements.

Here is a talisman for professional success in the next generation of engineers and for a greater profession.

*Milwaukee Engineering.*

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All high schools and colleges should have in their libraries at least one copy of this book. Every practicing engineer should have a copy on his desk.

MAJOR O. J. TODD in the *Journal of the Association of Chinese & American Engineers,* Peiping, China.

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The editors and contributors have done a masterful job in outlining the usefulness of the engineer to public welfare and of the profession in general. Anyone, whether a graduate engineer or a young man about to enter the profession, can profit greatly by a careful study of this important contribution to the engineering library.

R. O. KNUDSON, Adjustment Service.

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For students the book provides a description of the profession in which they are striving to become members; for instructors and schools it furnishes a fund of information which is not available elsewhere; for every engineer it offers useful and instructive reading matter; and for the general public it corrects the impression that engineers are locomotive operators or machinists.

The book is unique in subject and preparation, and one of the most advanced studies on vocational guidance ever published.

*N. A. C. A. Bulletin.*

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By comparison with this kind of guidance, most of the textbooks now available to youngsters must seem puerile.* * * For the teachers and deans charged with the responsibility of aiding students in the selection of their life work the volume affords material that no individual or commercial publisher could have assembled, except at a prohibitive cost.

*Ceredo Advance,* Ceredo, W. Va.

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The book will be of great value to parents, teachers in technical courses, and engineers in general; and it is a credit to all who had to do with it.

WM. B. LANDRETH, Sc.D.

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This work should rank as an outstanding contribution to the welfare and development of the engineering profession. Its purpose is to provide a picture of that profession in its different phases and activities, which may be placed before young men who are considering the profession as a career, so that they may know what sort of life awaits them in case they choose such a career.* * *

Engineering educators responsible for the arrangements of courses and the teaching of engineering subjects could read it with profit.* * *

The book, coming not from engineering educators but from the leading practicing engineers of the country, should have a marked effect upon engineering education.

DONALD M. BAKER, Consulting Engineer.

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"Vocational Guidance in Engineering Lines" is one of the most remarkable and valuable engineering publications of recent years. The editors deserve high praise for their altruistic labors.* * *

This volume should have a large circulation among students, teachers, and engineers.

DR. PALMER C. RICKETTS, Director, Rensselaer Polytechnic Institute.

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The work is by far the most comprehensive and reliable guide at present available to young men who are seeking information on engineering as a vocation. It should be in the city, high school, and college libraries.

L. E. CONRAD in *The Kansas Industrialist.*

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The contributor of each chapter is a man pre-eminent in his line of engineering. The presentation is simple and direct, and free from highly technical or elaborately literary features, so that students about to enter technical institutions for specific training will have some idea of what engineering really is.

PROF. ALEXANDER KLEMIN of New York University.

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In the way of an illuminating survey of the engineering profession one could ask for nothing better.

OTTO REINMUTH in the *Journal of Chemical Engineering.*

A most remarkable and unique book, showing clearly what a practical people the Americans are. The book is written by Engineers, for Engineers, about Engineers and their vocations; and it may properly be termed a guidance in the engineering profession as a vocation. However, the way it is written, and on account of the idea behind this book, it carries a message also to the public in general, far beyond the profession to which it is dedicated.

PAUL MOLLER of the Royal Danish
State Railway Co., Copenhagen.

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Not a single article is long or tedious. The more one reads, the more he wishes to read. After seeking out the particular subjects in which one is interested, he is sure to read others, covering parallel fields.

To the advisers of boys, the book is a godsend. To the boys themselves, it is an inspiration. It is one of those books to which they will return again and again.

DEAN O. J. FERGUSON, College of
Engineering, University of Nebraska.

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It is a wonderful book, all of it is good. It is a three-in-one volume—a manual for the guidance of high school students in the selection of their vocations; a text or reference for college freshmen; and a valuable manual for teaching and practicing engineers.

C. R. JONES, Dean Emeritus,
West Virginia University.

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I would heartily recommend the book to all students now in the process of their technical training, to high school students who are seeking guidance to aid them in their selection of a profession, and to the engineers already in the field.

DEAN GEO. C. SHADD,
School of Engineering, University of Kansas.

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This volume, which has been enthusiastically endorsed by a number of eminent statesmen, educators, and engineers as an authoritative and detailed guide to engineering, should be a godsend to every young man who feels the urge to become an engineer.

*State College Technician,*
State College, North Carolina.

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Compacted as it is with such interesting information presented in a most readable style, the book on vocational guidance should do for engineering what Slosson's famous "Creative Chemistry" has done for the science of chemistry. If public appreciation comes from public understanding, then popularizing the engineering profession is no mean task.

S. C. THOMAS SZE
in *The Peiping Chronicle*, Peiping, China.

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It should be read by high school students, students in our technical schools, faculties of engineering schools, and others who are interested in the engineering profession.

PROF. W. D. EMERSON
in the *News and Advertiser*, Northfield, Vt.

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Any young man contemplating engineering work would consider himself fortunate if he could interview one or two eminent engineers and learn first hand something of their professional work. Here, compiled into one 550-page volume, are the views of many engineers more complete and thorough than could be given by interview or letter.

ERNEST E. HOWARD, Consulting Engineer,
in *The Kansas City Star*.

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Each chapter describes fully its type of engineering work, telling of its historical development, the conditions under which the work is done and its nature, the preparation required of those who follow it, and the future developments which may be expected. In general, each chapter answers the questions, "How would this kind of engineering do as a life work?" "How does one prepare for it?" "Is it a good job and does it pay well?" "Where does a man get to who follows it?" and "How can I tell whether I could be such an engineer?"

It is notable that in such a book as this, which represents the independent thoughts of so many men, high idealism is strongly stressed. The joy that comes through creation and the knowledge that they have done their utmost for the benefit of mankind, are evident in the writings of all of these leaders of their profession who have contributed to the book.

CARL B. ANDREWS
in *The Honolulu Advertiser*.

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Every high-school and college library should have this book on its shelves. It will prove of great value to parents who are perplexed about the right college training for their sons, to teachers and college professors who are often asked for information about engineering, and to specialists in vocational counselling. College students will find the knowledge of help in choosing their courses.

*Journal of Education*, Halifax, N. S.

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This book, written in the spirit of encouragement and promise to young men, should accomplish its purpose of helping to elevate the engineering profession. It is commended to the attention of students of engineering by twenty of the most prominent men in public life of the United States.

PROF. FREDERIC BASS,
Head Civil Engineering Department,
University of Minnesota, Minneapolis.

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The principal object of the undertaking has been to encourage the most suitable of the youth of our country to enter the engineering profession and to discourage from attempting to enter it the unambitious and otherwise incompetent and undesirable young men; to provide the students in our technical schools with the full details of the profession of which they are striving to become members; to furnish the faculties of engineering schools with a fund of information about the profession they are teaching; and to give the general public a broader perspective concerning the engineering profession.

EDWIN J. BEUGLER, Consulting Engineer.

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What are the pre-requisites of an engineer? What are the useful tools, the command of which distinguishes an engineer from other individuals, professional or otherwise? What are the relations of the engineer to the public? It requires thought and experience to answer these questions; and the best answers so far available have been ably presented in this treatise on "Vocational Guidance in Engineering Lines."

DR. DAVID A. MOLITOR
in *The State Journal*, Lansing, Michigan.

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I have just been attending a great display, an exposition, in which skilled salesmen have been explaining to me the merits, not of automobiles, but of vocations. For I have been reading the new book "Vocational Guidance in Engineering Lines," sponsored by the American Association of Engineers. The aforesaid salesmen have made me wish I were skillful in several of these vocations. If I were back at the place where a youth must choose his life career, this book would help me amazingly. It would tell me truthfully and clearly what to expect in nearly three score distinct vocations, what preparations I would need and what difficulties I must surmount to achieve success in any one of them; in many cases, the book would give me valuable hints as to where and how to prepare.

I know of no other book that sets forth the facts concerning vocations in engineering lines so clearly, so forcefully, and so authoritatively as does this one. Each writer has achieved success in his line. He need not theorize—for he knows. Having been over a considerable part of the route, he can advise from experience—the advice that every thoughtful youth is anxious to get before setting out on his life career. The book makes the reader of mature years think how much more favored is the youth of today than was he of yesterday who aspired to a career in engineering and who knew not where to turn for information such as is here recorded.* * *

Every teacher or other person who may be in a position to give vocational advice ought to be familiar with the contents of this book. It is the product, not of one author but of many authors, each with achievement to his credit in the line about which he has written. The book seems destined to be invaluable for guiding the youth of today and of future generations into suitable careers. The editorial committee that elicited, edited, and arranged the contents have completed a task that will bring lasting credit to all concerned in this compilation.

DEAN D. E. CARPENTER,
International Correspondence Schools, Scranton, Pa.

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There has resulted a book of real engineering information and a most fascinating story written in a simple and fine rhetorical style which can be understood and enjoyed by student, teacher, engineer, and layman.* * *

By careful and honest coöperation between student, teacher, and book, the ultimate result in engineering training will be realized.

JOHN L. VOGEL, Bridge Engineer,
Delaware, Lackawanna & Western Railroad.

While it was intended primarily for the youth of high-school age who is seeking information about vocations in order to decide upon his life work, the volume is of just as much or more value to the engineering student who is trying to find the special part of the field which he desires to enter. The information is helpful, inspiring, and authoritative, because it has been prepared by outstanding men in the profession whose common attitude in this work has been the desire to set the feet of the aspirant straight upon the difficult path.

PRESIDENT F. H. SEXTON,
Nova Scotia Technical College, Halifax.

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The book will be read with profit by students contemplating an engineering career, by those whose duty it is to guide students in the selection of a vocation, and by anyone who wishes to understand the profession responsible for the multifarious projects that have changed the face of the world and the course of civilization.* * *

Enthusiasm is aroused by most of the contributors not by "inspirational" or "romantic" appeals, but by bringing out the intrinsic significance and fascination of the engineer's work.

PROF. J. C. L. FISH in *The Stanford Daily.*

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At the outset of his career, the student is faced with a most difficult problem and needs sound disinterested advice if he is to succeed in his chosen profession. A study of this book will give the engineering student a true perspective of the various branches of engineering which will help him to select the one for which he is best fitted, and it will also guide him in his studies.* * *

This book will also furnish the faculties of engineering schools with much useful information which will be of great assistance to them in their work.* * *

The final chapter on "Résumé and Conclusions" contains some sound advice to students and engineers; and it should be read carefully by those who contemplate studying for an engineering career.* * *

The book is well printed and merits a wide circulation. It should be read by all engineering students and also by those who have the responsibility of teaching and guiding them through their classes. There are fifty illustrations scattered throughout the book showing a representative structure with the chapter dealing with that particular branch of engineering.* * *These illustrations help materially to impress the student with the size and importance of the larger engineering works.

*The Canadian Engineer.*

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This valuable and comprehensive volume published under the auspices of the American Association of Engineers is intended to provide a treatise that will describe in full detail the engineering profession for students who are striving to enter the guild. At the same time it puts before them numerous examples of unusually fine engineering English as models for their future techno-literary work.

Incidentally, the book will supply the faculties of American engineering schools with a fund of information about the profession they are teaching, only a portion of which is now known to any of them individually, but which information they should be able to use to great advantage in their pedagogic work.* * *

The scientific world is under heavy obligations to Dr. Waddell and his associates for their altruistic and workmanlike efforts in the production of this admirable volume.

RICHARD L. SUTTON, M.D., LL.D.

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Permit me also to thank you for your kind reference to my article "Orientation for Engineering Freshmen." To one conducting such a course, "Vocational Guidance in Engineering Lines" comes as a veritable answer to a prayer.

PROF. DANIEL E. WHELAN, JR.,
Loyola University, Los Angeles.

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This book fulfills its purpose and does it in a really remarkable manner. As one reads, one feels that the editors and authors are writing as they would if they were discussing their profession with their own sons. There is a frankness and sincerity which holds throughout the entire work.* * *

One need not enlarge on the need for such a book. Every teacher of engineering has long wished that such a book could be produced and brought to the attention of every high school boy and engineering student. Here is a treatise that one might well present to the young man contemplating an engineering career and say to him: "Here are the specifications. Read them carefully. Can you fill the bill?"

PROF. DANIEL E. WHELAN, JR.,
Loyola University, Los Angeles, Calif.

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The engineering colleges of this country would do well to include "Vocational Guidance in Engineering Lines" as required reading in their courses in English, as it is written by men, engineers, economists, and others who know how to write.

PROF. DONALD DERICKSON, Tulane University.

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The book should be of interest to all young men in high school as well as those in college, and of particular value to students interested in the engineering profession, as it will assist them in determining whether they are qualified to study engineering, and it will enlighten them regarding the various phases of the profession.

*The New Mexico Lobo.*

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Engineering is painted in attractive colors for the young man of exceptional scholarship, with the stability of character to work hard and to fight hard while building up an early experience, and the personal qualities to understand and work with other people.* * *

It should have a place in every high school, college, and city library.

PROF. A. H. FULLER, Iowa State College.

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The most exhaustive work ever issued for giving young men an intelligent perspective of the various fields of engineering.* * *

The literary style and illustrations make the book actually fascinating. A feature that will interest many young men who are contemplating entering the profession of engineering is that this splendid book of more than 500 pages, written by some sixty of the world's greatest engineers, is sold at an absolutely non-profit price of $2.50.

WALTER HAYNES, E.E.
in the *Technogram,* Portland, Oregon.

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The book is well worth reading on account of its excellent style, but since it is written in a serious vein, and in independent chapters, will probably not be read by those boys who will profit most by it. It is not an encyclopedia of engineering, nor a description of material things, but it does deal largely with the human side of engineering and answers the many questions of a youth who wants to know what else there is to engineering besides math and science. In all, it is one of the most needed books that have appeared for some time for those who wish to be useful in this life.

WM. W. EDWARDS in the *Boston Evening Transcript.*

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The American Association of Engineers is to be congratulated on its success in carrying through this difficult project; and all members of the profession should feel free to recommend the book for high school use and to any individual who is interested.

DEAN H. V. CARPENTER, College of Engineering,
State College of Washington, Pullman, Washington.

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The style is clear and interesting, the pictures of the opportunities in engineering are not overdrawn, and a wealth of detail as to just what the engineer does is given.

DEAN ROLAND PARKER DAVIS in the *Daily Athenaeum.*

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This is a splendid book, and your association deserves much praise for sponsoring its publication. If there were more such volumes, as specific in their information as to other professions, available in school libraries, there would probably not be as many misfits in business and professional life today.

I hope we shall have an opportunity soon to refer to the book in our reading lists.

LELAND D. CASE, Member,
Board of Editors, *The Rotarian.*

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I find "Vocational Guidance in Engineering Lines" to be not only instructive but definitely fascinating. It will provide young men with facts they need to know about the profession, and it presents the facts in an inspiring way. The book would seem to me to be a great factor in attracting good men to the profession.

PRESIDENT WALTER DILL SCOTT,
Northwestern University.

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I congratulate you and your associates on having accomplished a stupendous task and one that cannot fail to be of tremendous value to the young manhood of this country and to institutions of learning throughout the land.

C. O. SHERRILL, Vice-President,
The Korger Grocery & Baking Co.

WADDELL & HARDESTY
CONSULTING ENGINEERS

J. A. L. WADDELL, D. E., LL. D.
SHORTRIDGE HARDESTY, LL. D., C. E.

CABLE ADDRESS: WADDELLJE
CODES: WESTERN UNION AND A. B. C.

142 MAIDEN LANE
NEW YORK

July 5, 1933.

Sir Arthur Currie,
McGill University,
Montreal, Canada.

Dear Sir Arthur:

Some two months ago there was sent to you a copy of "Vocational Guidance in Engineering Lines," which you were so kind as to endorse in advance. You may remember that I had a talk with you one night in New York about McGill University undertaking to bring this book to the attention of high school students and other preparatory school students throughout Canada.

At that time the conditions about publishing were quite different from those that developed later. First of all, I would ask whether you think it would be worth while for the benefit of Canada and the Engineering Profession in the Dominion to induce high school students to read our book. Second, whether you think McGill University would father the project.

I had originally thought of having electrotypes of our book made and sent to you to use, but the deal we made with the printers would prevent that, and now the best that I could offer would be to ship the books in bulk to Canada, freight charges prepaid, at a reduced rate.

If you are interested in this matter, I can send you a lot of papers explaining what we are doing on this side of the line, and write you at length.

With kindest regards and best wishes, I am

Yours very sincerely,

J. A. L. Waddell.

JALW-KEP

July 6th, 1933.

Dr. J. A. L. Waddell,
142 Maiden Lane,
New York, N.Y.

Dear Dr. Waddell,

Your letter of the 5th July addressed to the Principal arrives in his absence on vacation, and as I feel it may be too late for your purpose when he returns to the University, I suggest that you might wish to get in touch with the Dean of the Engineering Faculty, Professor Ernest Brown.

Yours faithfully,

Secretary to the Principal

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142 MAIDEN LANE
NEW YORK

July 7, 1933.

Prof. D. McMurray,
Principal, McGill University,
Montreal, Canada.

Dear Prof. McMurray:

Many thanks for your letter of the 6th inst. and for the information you sent. I believe that, as I have already talked to Sir Arthur on the matter, it would be better to await his return.

Yours very sincerely,

J. A. L. Waddell.

JALW-KEP

*Inter-department Correspondence*


McGILL UNIVERSITY

Office of the Dean,
FACULTY OF ENGINEERING.


June 6th,1933.

Sir Arthur Currie, G.C.M.G.,K.C.B.,
Principal.

Dear Sir Arthur:-

Some little time ago you sent me a copy of "Vocational Guidance in Engineering Lines", a book prepared under the auspices of the American Association of Engineers by an editorial committee, of which Dr. J.A.L. Waddell was chairman.

Owing to pressure of other work, I have not been able to look through the book carefully until recently, but I passed it on to Professor French shortly after you sent it to me. Neither he nor I think it is a good book to put into the hands of a young man who is trying to make up his mind as to whether he should enter the engineering profession. Every conceivable branch of engineering is treated in a special chapter by some expert, and some of them are too technical, as for example the article on "Steel -Building Engineering" on page 431. The paragraphs of this article on page 432 dealing with foundations indicate what I mean. Then again, on page 341 there is a list of details of information which should be shown on a city plan - deadly dull reading to a young man who is seeking general information about the profession. The article on "Engineering Compensation",page 150, requires an actuarial mind for its appreciation. I do not think it would be very useful unless it were interpreted in language more readily comprehended by the young man leaving high school.

Some of the articles by the editors are of "high moral tone" not likely to appeal to a young man. Dr. Waddell has for a long time regarded himself as a sort of high priest in matters affecting advice to engineering students. He is a very fine old man, now

*Inter-department Correspondence*

McGILL UNIVERSITY



79 years of age, and I have great admiration for many things he has done, but his style rather grates on one's feelings at times, and reflects his own self-satisfaction rather too strongly. His article on page 39 on "Vocational Guidance" illustrates what I mean. You might note particularly the first three paragraphs of page 41.

Professor French remarked that a good deal of emphasis is laid on the manifest high destiny of the engineers of the United States, and this could be well reduced by say fifty percent without any loss.

While the book has distinct merits in many ways, we do not think that as a guide for a young man entering a business or a profession it is to be compared with "The Young Man in Business" by Davis, or with Gow's two little books on the "Humanistics".

I am returning the book with this letter.

Yours faithfully,

G. Brown

Dean.

May 5, 1933.

Dean Ernest Brown,
Faculty of Engineering.

Dear Dean Brown,

I am sending you herewith a book "Vocational Guidance in Engineering Lines" which has been sent to me by the author, Dr. J.A.L. Waddell. I also send you correspondence I have had with Dr. Waddell, which I would ask you to return for my files.

As I am not an expert in engineering, I wonder if you would be good enough to glance through the book and let me have your opinion of it.

Ever yours faithfully,

Principal

WADDELL & HARDESTY
CONSULTING ENGINEERS

J. A. L. WADDELL, D. E., LL. D.
SHORTRIDGE HARDESTY, LL. D., C. E.

CABLE ADDRESS: WADDELLJE
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142 MAIDEN LANE
NEW YORK

To All Those Who Have Written Chapters for "Vocational Guidance in Engineering Lines", or Have Presented Photographs for Its Illustration, or Have Endorsed the Project in Writing, or Have Subscribed to Its Loan Fund, or Have Otherwise Aided in Its Materialization:

April 10, 1933.

Gentlemen:

This letter constitutes the final report of the Committee on Engineering Education of the American Association of Engineers anent the publication of its treatise on "Vocational Guidance in Engineering Lines"; because the book is promised by the fifteenth inst. A copy of it will be mailed to each of you by the printer; and the Committee hopes that all of you will be pleased with both its contents and its general appearance.

We had arranged some time ago that, in distributing the copies to the reviewers, there should be enclosed in each copy a printed letter signed by President Housholder; and we have lately concluded to insert the same in the books sent to ypu, primarily, to inform you of what we are doing in order to obtain some much needed publicity for the treatise, and secondarily, to be of service to you or your friends, in case that you decide to comply with our suggestion about your writing or procuring reviews. We see no valid objection whatsoever to any contributor of a chapter reviewing the book as a whole - even over his signature.

If, after reading it, you should feel like aiding the good cause still further, you can do so in any of the following ways:

A. Writing a review or reviews of the book, having the same published as widely as possible, and sending three copies of each review to the undersigned.
B. Having some of your friends do likewise.
C. Talking often and at length concerning the treatise with your friends and neighbors, and mentioning it at public meetings.
D. Advising young men and boys who contemplate studying for an engineering career, also their parents or guardians, to purchase and read the book.
E. Urging each public library in your vicinity to buy several copies, so that the youths in your district will be able to acquaint themselves with the contents of the treatise and be benefited thereby.
F. Aiding in the annual lecture scheme of the A. A. E., either officially or unofficially, by addressing high-school classes concerning the importance and dignity of the Engineering Profession and the great value of our book, especially to sub-freshmen engineering students.
G. Keeping a lookout for some philanthropic millionaire who might be willing to donate a fund to permit of the price of the book for sub-freshmen being reduced to one dollar or even less, and otherwise to aid the A. A. E. in the materialization of its important undertaking.

Speaking from a financial viewpoint, we have barely managed to keep the enterprise moving by securing a number of small loans at six percent interest, guaranteed only by the future sales of the book, amounting to some $1,300. A good portion of this has already been spent; but enough remains in the treasury to enable the Committee to carry on for a few months the prosecution of the enterprise, their main efforts being devoted, firstly, to bringing the treatise annually in a systematic manner to the attention of most of the high-school boys of the U. S. A. during the next decade; and, secondly, to pushing vigorously the sale of the book, in order that the Association may repay the various loans it has been forced to make in order to meet the numerous unavoidable cash expenditures incident to the carrying out of such an elaborate undertaking.

It might be well to state that the book will be sold only by the Mack Printing Company of Easton, Pa., and that the prices will be as follows:

| | |
|---|---|
| Single copies, postpaid, in the U. S. A. and Canada, | $ 2.50 |
| Orders in bulk (10 or more copies) per copy in the U. S. A. and Canada, transportation charges being prepaid, | 2.00 |
| Single copies, postpaid, in foreign countries, | 3.00 |
| Orders in bulk (10 or more copies) per copy in foreign countries, transportation charges being prepaid, | 2.50 |

All customs' duties are to be borne by the buyer.

Speaking for both the American Association of Engineers and ourselves, we desire to thank most sincerely and heartily each one and all of you who have so generously aided us in the accomplishment of the first step of our purpose, and to assure you of our firm intention to continue our efforts steadily and systematically, in order to bring to a satisfactory conclusion, within a reasonable time, the remaining work that has been laid out for the fruition of the Association's altruistic object.

THE COMMITTEE ON ENGINEERING EDUCATION
OF THE AMERICAN ASSOCIATION OF ENGINEERS

Per J. A. L. WADDELL, Chairman.

TO THE GENTLEMEN who have so kindly promised to review Vocational Guidance in Engineering Lines, the American Association of Engineers tenders its most hearty and appreciative thanks; and it takes the liberty of enclosing with the copies of the book sent to them the following statement of certain facts and explanations concerning which it deems they ought to be informed:

A. The undertaking is on an absolutely altruistic basis; for nobody except the printer of the book (who is also temporarily its publisher) will make a single dollar out of the enterprise.

B. The project is not confined merely to placing a most useful treatise on the market at unusually low prices, which prices, by the way, we suggest should be mentioned in each review, (viz. single copies, postpaid, $2.50 and in lots of ten or more $2.00 per copy, including transportation), together with the name and address of the seller, The Mack Printing Co., Easton, Pa.;but it will include also bringing it by lecture annually for a period of ten years to the attention of the students in practically all of the worth-while high schools and other preparatory schools in the principal centers of population of the U. S. A. These lectures are to be given by local engineers of the said centers on the subject of "The Engineering Profession" with the book in hand. The formation of these Lecture Groups has already been started by the Association's standing Committee on Engineering Education, and the work thereon will be continued by that Committee until all of the necessary arrangements have been perfected.

While the members of the various chapters of the Association (scattered all over the United States) will be expected to "do their bit" on this lecturing, engineers in the various lines of activity who do not belong thereto will be asked to serve on these Lecture Groups. This is as it should be, because the book treats of all the main divisions and most of the recognized specialties of technical activity.

C. The principal objects of the undertaking are as follows:

First. To encourage the brightest, most active, most ambitious, and most suitable of the youth of our country to come into the Engineering Profession, and to discourage from attempting to enter it the indolent, unambitious, unintellectual, and otherwise incompetent or undesirable young men.

Second. To provide for the students in our technical schools a treatise that will describe in full detail the profession of which they are striving to become members, and at the same time to put before them numerous examples of unusually fine engineering English, in order to serve them as models for their future techno-literary work.

Third. To furnish the faculties of American engineering schools with a fund of information about the profession they are teaching, only a portion of which is now known to any of them individually - which information they should be able to use to great advantage in their pedagogic work.

Fourth. To provide some 500 pages of truly interesting, instructive, and useful reading matter for every engineer in our land who is willing to take the time to peruse the volume; because there is absolutely no one person, except the Editors, who now possesses all of the information it contains.

Fifth. To give the general public an opportunity to correct the impression it has concerning the Engineering Profession, and to teach it that a professional engineer is not a man who drives a locomotive or operates a stationary engine.

Sixth. To keep the square pegs out of round holes and vice versa, and thus prevent a great number of young men from making failures of their lives, and from developing in their minds an inferiority complex because of having flunked out of a technical school.

Seventh. To save a vast sum of money each year by preventing a large number of young men who are unsuited for technical careers from attempting to study engineering. The magnitude of this saving will be understood when one considers that about one-half of the entering engineering freshmen are dropped out in the first year, that it costs in the neighborhood of one thousand dollars per annum for a young man to attend college, and that the institution has to spend at least that amount in its unsuccessful attempt to teach for a scholastic year a predestined flunk-out.

Eighth. By keeping weaklings out of the freshman class, the men of higher mentality will make greater progress; because it is a well recognized fact that the slow-thinking, lazy, indifferent, and otherwise undesirable members of the class always hold back the better men, thus getting them also into lazy habits and preventing them from attaining to the maximum of their working capacity. The immediate result of such exclusion would be the including of more courses in the curriculum and the attainment of greater thoroughness and efficiency in the methods of teaching.

Ninth. To arouse in the minds of both engineering teachers and engineering students a far greater enthusiasm for the Engineering Profession than they have under present conditions. This result is likely to occur for two reasons - first, the writers of the various chapters of the book are themselves enthusiasts, and what they say is often of an exceedingly stirring and inspiring character; and, second, a thorough knowledge of what engineering in all its lines and ramifications really means must arouse the interests of all live men who have adopted it, or are contemplating adopting it, for their life work.

The preceding remarks apply to practising engineers as a whole as well as to technical teachers and students - and nobody can deny that the enhancing of the respect and liking of engineers in general for the profession of their choice would be a most important desideratum. One direct result of this would be to induce engineers to take an interest in civic and national affairs, and to assume their proper stations in society.

Tenth. The ultimate benefits of the work inaugurated by this movement of our Association will be to improve materially in a few years' time the quality and efficiency of the men in the graduating classes in engineering, and also later on these same characteristics among practising engineers.

D. While Vocational Guidance in Engineering Lines has been prepared primarily for the benefit of both the students and the Engineering Profession in the U. S. A., it can readily be made equally useful in Canada, and at least of some value in certain foreign countries (notably those of Latin America) - in any case to the extent of letting foreign engineers know how technical work is done in our country.

E. In order to make our great altruistic undertaking a pronounced success, it should be given all the publicity possible, hence the request of the Editorial Committee that you review the book. We would suggest that the more widely your reviews are published the greater will be their influence.

After most of the reviews are collected, our Committee will prepare from them an advertising folder giving the "Opinions of the Profession and the Press." This will be systematically distributed wherever it will probably be economically effective to do so; and the Lecture Groups will be furnished with a liberal supply of copies to distribute to their hearers.

We hope that a perusal of the book and the explanation of its purpose and of our modus operandi will so arouse your enthusiasm for the cause as to induce you to continue to aid it, after your reviewing is finished, by talking about it to your friends and neighbors, and possibly by lending a hand with the lecturing.

F. In conclusion, we again extend to you our heartfelt thanks for your courtesy and kindness in acceding to our Committee's request that you review the book.

Respectfully and faithfully yours,

THE AMERICAN ASSOCIATION OF ENGINEERS

Vic H. Housholder President.

# LIST OF CITIES SELECTED

by the

## VOCATIONAL GUIDANCE COMITTEE

of the

## AMERICAN ASSOCIATION OF ENGINEERS

as

## CENTERS FOR LECTURING IN THE U.S.A.

on

## THE ENGINEERING PROFESSION

| | |
|---|---|
| ALASKA | Juneau. |
| ALABAMA | Birmingham, Mobile, and Montgomery. |
| ARIZONA | Phoenix and Tucson. |
| ARKANSAS | Little Rock. |
| CALIFORNIA | Berkeley, Long Beach, Los Angeles, Oakland, Pasadena, Sacramento, San Bernadino, and San Francisco. |
| COLORADO | Denver, and Pueblo. |
| CONNECTICUT | Bridgeport, Hartford, New Haven, and Waterbury. |
| DELAWARE | Wilmington. |
| DISTRICT OF COLUMBIA | Washington. |
| FLORIDA | Jacksonville, Miami, and Tampa |
| GEORGIA | Augusta, Atlanta, and Savannah. |
| IDAHO | Boise. |
| ILLINOIS | Chicago, Peoria, Rockford, and Springfield. |
| INDIANA | Fort Wayne, Evansville, Indianapolis, South Bend, and Terre Haute. |
| IOWA | Council Bluffs, Davenport, Des Moines, and Sioux City. |
| KANSAS | Kansas City and Topeka. |
| KENTUCKY | Covington and Louisville. |
| LOUISIANA | Baton Rouge, New Orleans, and Shreveport. |
| MAINE | Portland. |
| MARYLAND | Baltimore. |
| MASSACHUSETTS | Boston, Cambridge, Fall River, Lowell, Lynn, New Bedford, Springfield, and Worcester. |
| MICHIGAN | Ann Harbor, Detroit, Flint, Grand Rapids, Lansing, and Saginaw. |
| MINNESOTA | Duluth, Minneapolis, and St.Paul |
| MISSISSIPPI | Jackson. |
| MISSOURI | Kansas City, St. Joseph, and St. Louis. |
| MONTANA | Butte. |
| NEBRASKA | Lincoln and Omaha. |
| NEW HAMPSHIRE | Manchester. |
| NEW JERSEY | Bayonne, Camden, East Orange, Elizabeth, Jersey City, Newark, Paterson, and Trenton. |
| NEW MEXICO | Albuquerque. |
| NEW YORK | Albany, Binghampton, Brooklyn, Buffalo, New York, Rochester, Schenectady, Syracuse, Troy, Utica, and Yonkers. |
| NORTH CAROLINA | Charlotte and Winston-Salem. |
| NORTH DAKOTA | University. |
| OHIO | Akron, Canton, Cincinnati, Cleveland, Columbus, Dayton, Toledo, and Youngstown. |
| OKLAHOMA | Oklahoma City and Tulsa. |
| OREGON | Portland. |
| PENNSYLVANIA | Allentown, Bethlehem, Erie, Harrisburg, Philadelphia, Pittsburgh, Reading, Scranton, and Wilkes-Barre. |
| RHODE ISLAND | Pawtucket and Providence. |
| SOUTH CAROLINA | Charleston. |
| SOUTH DAKOTA | Sioux Falls. |
| TENNESSEE | Chattanooga, Knoxville, Memphis, and Nashville. |
| TEXAS | Austin, Dallas, El Paso, Fort Worth, Houston, and San Antonio. |
| UTAH | Salt Lake City. |
| VERMONT | Burlington. |
| VIRGINIA | Norfolk and Richmond. |
| WASHINGTON | Seattle, Spokane, and Tacoma. |
| WEST VIRGINIA | Huntington. |
| WISCONSIN | Madison and Milwaukee. |
| WYOMING | Cheyenne. |
| PORTO RICO | University. |
| HAWAII | Honolulu. |
| PHILIPPINE ISLANDS | Manila. |

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CONSULTING ENGINEERS

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SHORTRIDGE HARDESTY, LL. D., C. E.

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142 MAIDEN LANE
NEW YORK

April 12, 1933.

Sir Arthur Currie,
McGill University,
Montreal, Canada.

Dear Sir Arthur:

After reading "Vocational Guidance in Engineering Lines" (or as much of it as you intend to read), you would do me a great favor if you would write and tell me how well the book pleases you, and whether it comes up to the expectations you entertained concerning it when you did us the courtesy of endorsing our project in advance on the strength of the layout of chapters and the list of their authors that the Editors then submitted.

Respectfully and faithfully yours,

J. A. L. Waddell.

Chairman of the Editorial Committee.

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April 10, 1933.

Gentlemen:

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We had arranged some time ago that, in distributing the copies to the reviewers, there should be enclosed in each copy a printed letter signed by President Housholder; and we have lately concluded to insert the same in the books sent to ypu, primarily, to inform you of what we are doing in order to obtain some much needed publicity for the treatise, and secondarily, to be of service to you or your friends, in case that you decide to comply with our suggestion about your writing or procuring reviews. We see no valid objection whatsoever to any contributor of a chapter reviewing the book as a whole - even over his signature.

If, after reading it, you should feel like aiding the good cause still further, you can do so in any of the following ways:

A. Writing a review or reviews of the book, having the same published as widely as possible, and sending three copies of each review to the undersigned.
B. Having some of your friends do likewise.
C. Talking often and at length concerning the treatise with your friends and neighbors, and mentioning it at public meetings.
D. Advising young men and boys who contemplate studying for an engineering career, also their parents or guardians, to purchase and read the book.
E. Urging each public library in your vicinity to buy several copies, so that the youths in your district will be able to acquaint themselves with the contents of the treatise and be benefited thereby.
F. Aiding in the annual lecture scheme of the A. A. E., either officially or unofficially, by addressing high-school classes concerning the importance and dignity of the Engineering Profession and the great value of our book, especially to sub-freshmen engineering students.
G. Keeping a lookout for some philanthropic millionaire who might be willing to donate a fund to permit of the price of the book for sub-freshmen being reduced to one dollar or even less, and otherwise to aid the A. A. E. in the materialization of its important undertaking.

Speaking from a financial viewpoint, we have barely managed to keep the enterprise moving by securing a number of small loans at six percent interest, guaranteed only by the future sales of the book, amounting to some $1,300. A good portion of this has already been spent; but enough remains in the treasury to enable the Committee to carry on for a few months the prosecution of the enterprise, their main efforts being devoted, firstly, to bringing the treatise annually in a systematic manner to the attention of most of the high-school boys of the U. S. A. during the next decade; and, secondly, to pushing vigorously the sale of the book, in order that the Association may repay the various loans it has been forced to make in order to meet the numerous unavoidable cash expenditures incident to the carrying out of such an elaborate undertaking.

It might be well to state that the book will be sold only by the Mack Printing Company of Easton, Pa., and that the prices will be as follows:

| | |
|---|---|
| Single copies, postpaid, in the U. S. A. and Canada, | $ 2.50 |
| Orders in bulk (10 or more copies) per copy in the U. S. A. and Canada, transportation charges being prepaid, | 2.00 |
| Single copies, postpaid, in foreign countries, | 3.00 |
| Orders in bulk (10 or more copies) per copy in foreign countries, transportation charges being prepaid, | 2.50 |

All customs' duties are to be borne by the buyer.

Speaking for both the American Association of Engineers and ourselves, we desire to thank most sincerely and heartily each one and all of you who have so generously aided us in the accomplishment of the first step of our purpose, and to assure you of our firm intention to continue our efforts steadily and systematically, in order to bring to a satisfactory conclusion, within a reasonable time, the remaining work that has been laid out for the fruition of the Association's altruistic object.

THE COMMITTEE ON ENGINEERING EDUCATION
OF THE AMERICAN ASSOCIATION OF ENGINEERS

Per J. A. L. WADDELL, Chairman.

WADDELL & HARDESTY
CONSULTING ENGINEERS

J. A. L. WADDELL, D. E., LL. D.
SHORTRIDGE HARDESTY, LL. D., C. E.

CABLE ADDRESS: WADDELLJE
CODES: WESTERN UNION AND A. B. C.

142 MAIDEN LANE
NEW YORK

Feb. 14, 1933.

Sir Arthur W. Currie,
McGill University,
Montreal, Canada.

Dear Sir Arthur:

Many thanks for your letter of the 13th inst. and for the information you were so kind as to send.

After the book is issued, we can see whether any of the Canadian schools would care to utilize it as a textbook. Meanwhile, I see no reason why we cannot quote American prices for Canada, provided the buyer pay the duty.

Sincerely and faithfully yours,

J. A. L. Waddell

JALW-KEP

February 13th, 1933.

Dr. J. A. L. Waddell,
142 Maiden Lane,
New York, N.Y.

My dear Dr. Waddell:-

I have your letter of the 11th instant with the enclosures, and should, of course, be only too glad to help you in any way possible.

The book as it is is dutiable and no representations that we could make would alter this. If, however, it is prescribed by universities or schools in connection with a regular course, any bookseller, on obtaining a certificate from one of such universities or schools, may bring it in without duty, save for a special 3% excise tax. It may well be that as soon as the work becomes known some institutions will prescribe it, in which case the conditions imposed upon you by the American Association of Engineers will be fulfilled. This is the best we can do and I hope it will be satisfactory.

Yours faithfully,

Principal.

TO THE GENTLEMEN who have so kindly promised to review Vocational Guidance in Engineering Lines, the American Association of Engineers tenders its most hearty and appreciative thanks; and it takes the liberty of enclosing with the copies of the book sent to them the following statement of certain facts and explanations concerning which it deems they ought to be informed:

A. The undertaking is on an absolutely altruistic basis; for nobody except the printer of the book (who is also temporarily its publisher) will make a single dollar out of the enterprise.

B. The project is not confined merely to placing a most useful treatise on the market at unusually low prices, which prices, by the way, we suggest should be mentioned in each review, (viz. single copies, postpaid, $2.50 and in lots of ten or more $2.00 per copy, including transportation), together with the name and address of the seller, The Mack Printing Co., Easton, Pa.;but it will include also bringing it by lecture annually for a period of ten years to the attention of the students in practically all of the worth-while high schools and other preparatory schools in the principal centers of population of the U. S. A. These lectures are to be given by local engineers of the said centers on the subject of "The Engineering Profession" with the book in hand. The formation of these Lecture Groups has already been started by the Association's standing Committee on Engineering Education, and the work thereon will be continued by that Committee until all of the necessary arrangements have been perfected.

While the members of the various chapters of the Association (scattered all over the United States) will be expected to "do their bit" on this lecturing, engineers in the various lines of activity who do not belong thereto will be asked to serve on these Lecture Groups. This is as it should be, because the book treats of all the main divisions and most of the recognized specialties of technical activity.

C. The principal objects of the undertaking are as follows:

First. To encourage the brightest, most active, most ambitious, and most suitable of the youth of our country to come into the Engineering Profession, and to discourage from attempting to enter it the indolent, unambitious, unintellectual, and otherwise incompetent or undesirable young men.

Second. To provide for the students in our technical schools a treatise that will describe in full detail the profession of which they are striving to become members, and at the same time to put before them numerous examples of unusually fine engineering English, in order to serve them as models for their future techno-literary work.

Third. To furnish the faculties of American engineering schools with a fund of information about the profession they are teaching, only a portion of which is now known to any of them individually - which information they should be able to use to great advantage in their pedagogic work.

Fourth. To provide some 500 pages of truly interesting, instructive, and useful reading matter for every engineer in our land who is willing to take the time to peruse the volume; because there is absolutely no one person, except the Editors, who now possesses all of the information it contains.

Fifth. To give the general public an opportunity to correct the impression it has concerning the Engineering Profession, and to teach it that a professional engineer is not a man who drives a locomotive or operates a stationary engine.

Sixth. To keep the square pegs out of round holes and vice versa, and thus prevent a great number of young men from making failures of their lives, and from developing in their minds an inferiority complex because of having flunked out of a technical school.

Seventh. To save a vast sum of money each year by preventing a large number of young men who are unsuited for technical careers from attempting to study engineering. The magnitude of this saving will be understood when one considers that about one-half of the entering engineering freshmen are dropped out in the first year, that it costs in the neighborhood of one thousand dollars per annum for a young man to attend college, and that the institution has to spend at least that amount in its unsuccessful attempt to teach for a scholastic year a predestined flunk-out.

Eighth. By keeping weaklings out of the freshman class, the men of higher mentality will make greater progress; because it is a well recognized fact that the slow-thinking, lazy, indifferent, and otherwise undesirable members of the class always hold back the better men, thus getting them also into lazy habits and preventing them from attaining to the maximum of their working capacity. The immediate result of such exclusion would be the including of more courses in the curriculum and the attainment of greater thoroughness and efficiency in the methods of teaching.

Ninth. To arouse in the minds of both engineering teachers and engineering students a far greater enthusiasm for the Engineering Profession than they have under present conditions. This result is likely to occur for two reasons - first, the writers of the various chapters of the book are themselves enthusiasts, and what they say is often of an exceedingly stirring and inspiring character; and, second, a thorough knowledge of what engineering in all its lines and ramifications really means must arouse the interests of all live men who have adopted it, or are contemplating adopting it, for their life work.

The preceding remarks apply to practising engineers as a whole as well as to technical teachers and students - and nobody can deny that the enhancing of the respect and liking of engineers in general for the profession of their choice would be a most important desideratum. One direct result of this would be to induce engineers to take an interest in civic and national affairs, and to assume their proper stations in society.

Tenth. The ultimate benefits of the work inaugurated by this movement of our Association will be to improve materially in a few years' time the quality and efficiency of the men in the graduating classes in engineering, and also later on these same characteristics among practising engineers.

D. While Vocational Guidance in Engineering Lines has been prepared primarily for the benefit of both the students and the Engineering Profession in the U. S. A., it can readily be made equally useful in Canada, and at least of some value in certain foreign countries (notably those of Latin America) - in any case to the extent of letting foreign engineers know how technical work is done in our country.

E. In order to make our great altruistic undertaking a pronounced success, it should be given all the publicity possible, hence the request of the Editorial Committee that you review the book. We would suggest that the more widely your reviews are published the greater will be their influence.

After most of the reviews are collected, our Committee will prepare from them an advertising folder giving the "Opinions of the Profession and the Press." This will be systematically distributed wherever it will probably be economically effective to do so; and the Lecture Groups will be furnished with a liberal supply of copies to distribute to their hearers.

We hope that a perusal of the book and the explanation of its purpose and of our modus operandi will so arouse your enthusiasm for the cause as to induce you to continue to aid it, after your reviewing is finished, by talking about it to your friends and neighbors, and possibly by lending a hand with the lecturing.

F. In conclusion, we again extend to you our heartfelt thanks for your courtesy and kindness in acceding to our Committee's request that you review the book.

Respectfully and faithfully yours,

THE AMERICAN ASSOCIATION OF ENGINEERS

Vic H. Housholder President.

WADDELL & HARDESTY
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CABLE ADDRESS: WADDELLJE
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142 MAIDEN LANE
NEW YORK

Feb. 11, 1933.

Sir Arthur Currie,
Presidemt McGill University,
Montreal, Canada.

Dear Sir Arthur:

From the enclosed copy of our last Progress Report on Vocational Guidance in Engineering Lines, you will see that the book is being published temporarily by The Mack Printing Co. of Easton, Pa.

The prices arranged for are as follows:

| | |
|---|---|
| For single copies in U.S.A., postpaid | $2.50 |
| Shipped in bulk " " express paid | 2.00 |
| For single copies in other countries, postpaid, | 3.00 |

It would please me greatly to make the prices for Canada the same as those for the United States, and I have suggested this to the Chicago headquarters of the American Assn. of Engineers. They have replied approving my suggestion, with the proviso that the books enter Canada duty free; hence I write to ask you whether such an arrangement could be consummated.

For my part, I do not see that we are interested in the question of customs' charges; for, if there be any, they should be paid by the recipient.

We expect to have the book on the market early in April.

A prompt reply would be greatly appreciated by

Yours sincerely and faithfully,

JALW-KEP

J. A. L. Waddell.

PROGRESS REPORT
ON
VOCATIONAL GUIDANCE IN ENGINEERING LINES

January 28, 1933.

To
All the writers of chapters, the endorsers of the undertaking, and others interested in the issuing of the proposed book on Vocational Guidance in Engineering Lines, the MS. of which has been elicited and edited under the authorization of The American Association of Engineers.

Gentlemen:

On April 19, 1932, our Editorial Committee sent you a progress report upon our project, saying that the MS. was completed and ready to deliver to the printer, but that further progress had to await the obtaining of funds for the book's publication and for its systematic presentation to high-school and other preparatory-school students for a period of ten years. Since that date the said MS. has been lying in a safety-deposit vault, while numerous strenuous but absolutely unsuccessful attempts were being made, in both Chicago and the East, to find a Patron who would furnish the necessary cash. Many wealthy individuals and corporations have been approached; but all unanimously replied that, in view of the general financial depression, it is impracticable to raise the required money at the present time. For this reason, systematic attempts to do so were halted several months ago.

At the annual meeting of the Association, held in Washington, D.C., about the end of last September, I made a suggestion as to how we might issue the book in two or, at most, three months' time on a provisional basis by turning over the enterprise temporarily to some reputable firm of printers or publishers, who would get out the treatise at their own expense and attend to the sale thereof until the time when sufficient money is available for carrying on the project upon the original altruistic lines. I asked for official permission to approach some such firm with this object in view; and I received it. Upon my return to New York City, I took up the matter with the Mack Printing Co. of Easton, Pa., a firm of very high standing that a few years previously had done some truly excellent printing and publishing work for me. The result was a proposal that was quite satisfactory to me personally; consequently I drafted an agreement based thereon and submitted it for approval to the Headquarters of the A.A.E. at Chicago. The layout, after long deliberation, having proved satisfactory, the contract was closed; and the Publisher is now starting work. He expects to complete the job in about two months.

The main outlines of the contract are as follows:

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| Number of copies in initial printing, | 5,000 |
| Cost of same, including the electrotyped pages, | $5,000 |
| Additional copies for the initial printing, if ordered before any pages are printed,* | 50¢ per copy |
| Distribution, 20¢ per copy, plus actual cost of postage, express, or freight, | |

* It has been decided to order 1,000 additional copies for use by the Committee in various ways, such as complimentary, reviewing, and lecturing.

Future printings of

| | |
|---|---|
| 1,000 copies | 95¢ per copy |
| 2,000 " | 75¢ " " |
| 3,000 " | 65¢ " " |
| 4,000 " | 60¢ " " |
| 5,000 " | 55¢ " " |

Selling prices, including transportation,

| | |
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| For the U.S.A., single copies | $2.50 per copy |
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| Outside of the U.S.A. | $3.00 per copy |

Arrangements are being made for an extensive, world-wide reviewing of the treatise, a collection of all reviews, the preparation therefrom of an advertising folder giving the "Opinions of the Profession and the Press," and a large distribution of the said folder to various groups of people, libraries, and organizations that might be interested in utilizing the new book, together with a special printed letter for those of each group.

The proceeds from sales are to be applied, first, to reimburse the Publisher for all legitimate expenses, and then to recoup (with interest at six per cent) all those who have furnished money to carry on the work of the Editorial Committee. After that, all dividends from sales are to be divided equally between the Publisher and the Association, the former keeping his share as a profit earned by reason of distribution, and the latter either spending its share on additional advertising or else applying it to the formation of a fund to aid in covering the expenses of the before-mentioned lecturing.

It is the intention of the Board of Direction of the Association to renew its efforts on the solicitation of funds from a Patron just as soon as the general financial condition of the country will warrant the making of another attempt. When the money is actually secured, the enterprise will be taken over from the Publisher, and the original altruistic purpose of the A.A.E. will be materialized. Meanwhile, it is not at all unlikely that the book will have entirely paid for itself, thus lowering materially the amount of gift money that has to be furnished by the said Patron. It is hoped that the future prices of the book may be made as low as $2.00, or possibly $1.50, to the public and $1.00, or possibly 75¢, to sub-freshmen. The larger figures might render the project nearly, but not quite, self-supporting; but the smaller ones would involve a gradual using up of the Patron's donation.

It might be well to mention the fact that the number of members of the Editorial Committee has been reduced to unity by the resignations last summer of Mr. Skinner and Prof. Wessman - the former because of serious illness that culminated in his death on Dec. 24th, and the latter because of his having moved to Illinois. I am not asking for any men to take their places, as I prefer to finish the job myself - of course with the requisite clerical help. At the Washington meeting I reported the resignation of my two associates, and told of the loyal and effective aid they had rendered on our undertaking. A formal vote of thanks was passed by the Assembly and transmitted to them in due form.

Please note that we have adopted this temporary measure for publication only as a last resort, in order to waste no more time in starting the utilization of the treatise, upon the preparation of which has already been expended so much of effort, time, and money, and upon which there will still have to be spent a great deal more.

Hoping that what has been done will meet with the approval of all concerned, I remain, with great respect,

Yours faithfully,

142 Maiden Lane
New York, N. Y.

J. A. L. Waddell.

PROGRESS REPORT
ON
VOCATIONAL GUIDANCE IN ENGINEERING LINES

January 28, 1933.

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All the writers of chapters, the endorsers of the undertaking, and others interested in the issuing of the proposed book on Vocational Guidance in Engineering Lines, the MS. of which has been elicited and edited under the authorization of The American Association of Engineers.

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Yours faithfully,

J. A. L. Waddell.

142 Maiden Lane
New York, N. Y.

# PROGRESS REPORT
# ON
# VOCATIONAL GUIDANCE IN ENGINEERING LINES

New York, N. Y.,
April 19, 1932

To
The American Association of Engineers,
Willoughby Tower,
Chicago, Illinois.

and to
All who are directly interested in the Vocational Project undertaken by that Association.

Gentlemen:

We, the undersigned members of the Committee on Engineering Education of the A.A.E., make you the following Progress Report concerning the book on "Vocational Guidance in Engineering Lines" that we were officially instructed in 1930 to elicit and edit:

Herewith enclosed is a final list of chapters, sixty all told plus an Appendix and the Index, with the names of their authors.

The MS. of the entire book is now finished in duplicate and ready to deliver to the printer, as soon as funds are available for its publication.

The following is a close estimate of the number of pages, there being 525 words, on the average, to a full page of the text:

| | |
|---|---|
| Partial pages (i.e. requiring very little setting of type) | 51 |
| Blank pages | 32 |
| Solid-chapter pages (N.B. The last page of a chapter will seldom be of full length) | 372 |
| Photostats of letters (full page) | 17 |
| Photographs of large constructions (full page) | 47 |
| Appendix (fine print in 2 cols.) | 15 |
| Index ditto | 16 |
| Total number of pages | 550 |

A change in policy has been adopted in respect to the illustrations. At first it was intended to put them all at the end of Chapter II, The Engineering Profession; but later it was decided to place only a few there and to distribute the others appropriately among the various chapters, at the same time augmenting the number thereof. This will effect a decided improvement in both appearance and usefulness, most of the chapters having at the end thereof a striking-looking illustration of one of the kinds of construction covered by the division or specialty under consideration.

It has been decided to make the price of the book to the sub-freshmen $1.00 per copy, and to everybody else $2.00 per copy, with a 25% reduction to booksellers. It is intended to distribute a large number of gratis copies for reviewing, lecturing, and advertising, and also, in extreme cases of impecuniosity, to worthy high-school students. As the cost of future copies will vary from 80¢ to $1.00 each, according to the number in the order, we figure that the receipts from sales may be just large enough to carry the cost of future printings, especially if the treatise be extensively used as a textbook in our technical schools. There ought to be a large demand for it there in the English Language classes, and in teaching the young men what the Engineering Profession actually is.

We have figured that the Association needs at the outset $15,000 to pay for the cost of getting out the book; having it thoroughly reviewed throughout the world; preparing publishers' folders from the reviews to record the "Opinions of the Profession and the Press"; distributing these folders throughout the United States, to libraries, the engineering teachers listed in the S.P.E.E., the principals of high schools and other preparatory schools, all the members of the A.A.E., and those engineers who might be induced to lecture, free of charge, concerning the Engineering Profession with special reference to our book and its great value to students in all stages and to young engineers; the first year's free lecturing expenses; and as large a number of paid lectures as possible delivered by well known professional lecturers, so as to give impetus at the outset to the sale and distribution of the treatise. The allowance of $15,000 is none too great for the accomplishment of all the above mentioned undertakings; and an additional $5,000 would be a great help. Thereafter there should be a further allowance of $3,000 per annum for five more years, in order to cover the printing, additional advertising, traveling expenses of lecturers, and numerous other items of legitimate expense.

We aim to establish in each of the large and medium-sized cities throughout the entire country a small coterie of lecturers, who will pledge themselves to see that, for a period of six years, each high school and each large preparatory school in the immediate vicinity be given each year, as before indicated, a lecture about the Engineering Profession and the Association's book. Many, but by no means all, of these lecturers would be drawn from the ranks of the A.A.E., because we look also for help from many members of the four Founder Societies who do not belong to our Association.

This enterprise is by no means a one-society affair; for, while it is true that it was evolved and managed by the A.A.E., the book was written mainly by the members of other national technical organizations, especially the American Institute of Consulting Engineers.

Your Committee has been striving hard, particularly during the last six months, to find a Patron for the project who would

furnish the necessary funds; but, up to the present time, with no success whatsoever. Mr. H. A. Wagner has been working steadily in Chicago to the same end with like result. The present is the worst period in American history to secure subscriptions for altruistic objects. The "foundations" are all tied up with red tape, the usual large donors to such objects have pledged themselves to payments on account that they have trouble in meeting; many of the important companies who employ technical men are striving hard to keep their heads above water; and most individuals who are ordinarily deemed wealthy are now practically "dead broke".

This condition means only delay in the issuing of our book -- not by any means an abandonment of the undertaking. We could under no circumstances whatsoever quit now after inducing half a hundred busy specialists to devote their time and energy to the preparation of a large portion of the MS. of the book.

A very conservative estimate of the value of the time spent by the authors and editors up to date is $70,000.-- all freely given.

The engineers of our country have certainly done their bit on the undertaking; and if some of the employers of technical labor, or the great engineering colleges, or the famed American philanthropists were to do only one half as well, the undertaking would indubitably be carried to a successful issue without further delay.

The magnitude of the value of this book and the involved project to the engineering profession and to our country is such that very few can realize its possibilities; but, as we have stated previously on several occasions, the measure of success of this movement will be gaged by the amount of publicity that is given to it and by how prominently the book is brought to the attention of the student youth of our country.

Your Committee does not consider that its work will be accomplished until after the book is issued, reviewed, and advertised, and the system of lecturing firmly established throughout our land. When all of these desiderata are attained, we shall send in our resignations and leave the future official handling of the enterprise to the A.A.E. headquarters in Chicago.

We are more than pleased with the quality of the material we have elicited and edited; and we predict that the treatise will prove to be second to no book ever issued, in respect to professional and national importance, general style, and excellence of diction.

Your Committee intends to keep on striving to the best of its ability to raise the necessary funds and finish the work laid out for accomplishment; and we should be pleased to receive any suggestions concerning the best <u>modus operandi</u> therefor.

Even after our job is completed and the Committee discharged, each of us, individually, intends, as long as he lives, to do all that lies in his power to aid in the advancement of the great cause.

The program laid out apparently covers only six years; but we deem that, before the end of that period, the project will have proved conclusively its worth, and that then there will be no difficulty encountered in procuring funds for its indefinite continuation.

Respectfully and faithfully yours,

J. A. L. Waddell, Chmn. (Committee on
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Frank W. Skinner (of the American
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Harold E. Wessman (Engineers.

LIST OF CHAPTERS

for

VOCATIONAL GUIDANCE IN ENGINEERING LINES

(Final)



SPECIALTIES

SPECIALTIES (Con't)



N.B. The estimated total number of pages, at 525 words per full page, is 550.

LIST OF CHAPTERS

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VOCATIONAL GUIDANCE IN ENGINEERING LINES

(Final)



SPECIALTIES

## SPECIALTIES (Con't)

| | | | |
|---|---|---|---|
| Chapter | XXXIV. | Geodetic Surveying | Dr. William Bowie |
| Chapter | XXXV. | Geological Engineering | Prof. Albert O. Hayes |
| Chapter | XXXVI. | Highway Engineering | Charles M. Upham |
| Chapter | XXXVII. | Hydraulic Engineering | Prof. H. K. Barrows |
| Chapter | XXXVIII. | Hydro-Electric-Power Engineering, | Col. Frederick W. Scheidenhelm |
| Chapter | XXXIX. | Illuminating Engineering | Preston S. Millar |
| Chapter | XL. | Industrial Engineering | Prof. C. E. Bullinger |
| Chapter | XLI. | Land-and-City Surveying | Frank W. Tuttle |
| Chapter | XLII. | Metallurgical Engineering | Dr. Edward P. Mathewson |
| Chapter | XLIII. | Municipal Engineering | Dr. C. E. Grunsky |
| Chapter | XLIV. | Oil-and-Gas Engineering | C. V. Millikan |
| Chapter | XLV. | Port Engineering | John F. Coleman |
| Chapter | XLVI. | Power-Machinery Engineering | William F. Ryan |
| Chapter | XLVII. | Railroad Engineering | L. F. Loree |
| Chapter | XLVIII. | Railway-Mech. Engineering | Marion B. Richardson |
| Chapter | XLIX. | Reclamation, Drainage, and Irrigation Engineering | George B. Hills |
| Chapter | L. | Reinforced-Concrete Engineering | A. R. Lord |
| Chapter | LI. | Research Engineering | Dr. J. A. L. Waddell |
| Chapter | LII. | River Engineering | The Editors |
| Chapter | LIII. | Sanitary Engineering | James H. Fuertes |
| Chapter | LIV. | Steel-Building Engineering | H. G. Balcom |
| Chapter | LV. | Subway Engineering | Dr. Robert Ridgway |
| Chapter | LVI. | Telephone, Telegraph, and Radio Engineering, | The Editors |
| Chapter | LVII. | Tunnel Engineering | J. C. Meem |
| Chapter | LVIII. | Valuation Engineering | Dr. Charles F. Loweth |
| Chapter | LIX. | Water-Supply Engineering | Dr. M. M. O'Shaughnessy |
| Chapter | LX. | Résumé and Conclusions | The Editors |
| Appendix | | Who's Who in the Book | The Editors |
| Index | | | |

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PROGRESS REPORT
ON
VOCATIONAL GUIDANCE IN ENGINEERING LINES

New York, N. Y.,
April 19, 1932

To
The American Association of Engineers,
Willoughby Tower,
Chicago, Illinois.

and to
All who are directly interested in the Vocational Project undertaken by that Association.

Gentlemen:

We, the undersigned members of the Committee on Engineering Education of the A.A.E., make you the following Progress Report concerning the book on "Vocational Guidance in Engineering Lines" that we were officially instructed in 1930 to elicit and edit:

Herewith enclosed is a final list of chapters, sixty all told plus an Appendix and the Index, with the names of their authors.

The MS. of the entire book is now finished in duplicate and ready to deliver to the printer, as soon as funds are available for its publication.

The following is a close estimate of the number of pages, there being 525 words, on the average, to a full page of the text:

| | |
|---|---|
| Partial pages (i.e. requiring very little setting of type) | 51 |
| Blank pages | 32 |
| Solid-chapter pages (N.B. The last page of a chapter will seldom be of full length) | 372 |
| Photostats of letters (full page) | 17 |
| Photographs of large constructions (full page) | 47 |
| Appendix (fine print in 2 cols.) | 15 |
| Index ditto | 16 |
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(Final)



SPECIALTIES

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April 16th, 1932.

Dr. J.A.Waddell,
150 Broadway,
New York, N.Y.

My dear Dr. Waddell,

I shall be glad indeed to see you when I visit New York next week. I should say some time Friday would be most convenient. We can arrange the hour when we meet on Thursday.

Ever yours faithfully,

Principal.

WADDELL & HARDESTY
CONSULTING ENGINEERS

J. A. L. WADDELL, D. E., LL. D.
SHORTRIDGE HARDESTY, LL. D., C. E.

ASSOCIATE ENGINEERS
W. G. WILLIAMS, C. E.
F. DE SCHAUENSEE, C. E.
THOS. E. BROWN, JR., E. M.
C. W. YELM, C. E.

CABLE ADDRESS: WADDELLJE
CODES: WESTERN UNION AND A. B. C.

150 BROADWAY
NEW YORK

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PARIS, FRANCE

April 13, 1932.

Sir Arthur Currie,
Principal of McGill University,
Montreal, Canada.

Dear Sir Arthur:

This morning I received an announcement concerning the 37th Annual Dinner of the New York Graduates Society of McGill, in which the statement is made that you are to be present on the 21st inst. Possibly this will give me the opportunity of a full hour's talk with you concerning which I wrote you some time ago. I now write to ask whether you can arrange to give me an uninterrupted hour of your valuable time and the privilege of taking with me two of my friends for the conference.

With kindest regards,

Yours very sincerely,

JALW-KEP

J. A. L. Waddell.

WADDELL & HARDESTY
CONSULTING ENGINEERS

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PARIS, FRANCE

March 12, 1932.

General Sir Arthur Currie,
President of McGill University,
Montreal, Canada.

Dear Sir Arthur:

There is an educational matter that I believe should be of great importance to Canada, my native country, about which I desire to talk to you. Are you anticipating coming to New York City in the near future? If so, may I have an hour's conference with you then? Otherwise, could I see you at Montreal?

Very sincerely yours,

J. A. L. Waddell

JALW-KEP

March 14, 1932.

J. A. Waddell, Esq., D.E., LL.D.,
Messrs. Waddell & Hardesty,
150 Broadway,
New York, N.Y.

My dear Dr. Waddell,

I have your letter of the 12th, and in reply, may I say that it is not my intention to go to New York for some months - at least I know of nothing to necessitate such a trip.

I shall be very glad indeed to see you any time you come to Montreal.

With all kind wishes,

I am,

Ever yours faithfully,

Principal.

# STATEMENT CONCERNING

# VOCATIONAL GUIDANCE

# IN ENGINEERING LINES

Prepared Specially

by

J. A. L. WADDELL

Chairman

Of The Editorial Committee

FOR THOSE REQUESTED TO LECTURE

TO SUB-FRESHMEN UPON

"THE ENGINEERING PROFESSION"

WITH SPECIAL REFERENCE TO THE BOOK

THE AMERICAN ASSOCIATION OF ENGINEERS, through its standing Committee on Engineering Education, has suceeded in eliciting and editing the MS. of a book on Vocational Guidance in Engineering Lines (covering all the important divisions and sub-divisions of the profession) that has been written by a full half-hundred technical specialists of the highest standing. Attached hereto is a list of the chapters with the names of their authors. The said MS. has already gone to press, and the book is due to be issued about the middle of April.

The treatise will total some 560 pages (averaging 525 words per full page), including some fifty illustrations of outstanding engineering constructions, sixteen photostated letters of endorsement of the project by prominent Americans (with Ex-President Hoover heading the list), and a photostated official approval by the American Institute of Consulting Engineers.

The book is intended mainly for the benefit of students in high schools and other preparatory schools who are contemplating the study and adoption of some line of engineering endeavor; but it should also be exceedingly useful as a textbook in engineering schools, in order to teach the students thereof what the profession of engineering actually is and what kinds of work are covered by its various branches and by the numerous specialties in the said branches. It will also provide them with excellent specimens of engineering English, from which they can select for themselves suitable style-models for their technical writing.

This enterprise of the American Association of Engineers is by no means confined to the issuing of a book on Vocational Guidance; for it includes also its presentation annually during the next decade, by local engineers of good standing, to the students in most of the high schools and other preparatory schools of all the large centers of population of the U.S.A., one hundred and fifty of them having been selected as a starter, as per the enclosed list of localities. These local engineers, who will have pledged themselves in small groups to see that this presentation is thoroughly done in their vicinity, will lecture gratis to the young men concerning the Engineering Profession, with constant reference to the book and occasional quotations therefrom, the primary object being to promote its perusal by both them and their parents or guardians.

The ultimate object of the treatise is to induce young Americans of the highest ability to undertake the study and future practice of engineering, and to discourage from making the attempt all who are in any way unfit - in other words, the endeavor is to keep the square pegs out of the round holes and vice versa.

The undertaking is absolutely altruistic in character; for nobody concerned, except the printer (who will have to be temporarily the publisher also), can make any money by its production. It is truly a labor of love on the part of the Association, the Editors, and the authors of the chapters.

The MS. of the book has been ready to send to the printer since April, 1932, but there have been no funds available for publication; consequently the Association, in order not to lose any more valuable time, has found it advisable to enter into a temporary arrangement with the Mack Printing Company of Easton, Pa., by which the said company shall, at its own expense, publish the book and sell it in the U. S. A. and Canada at $2.50, postpaid, for single copies, at $2.00 per copy when delivered there in bulk, and at $3.00, postpaid, per copy in all foreign countries. Outside of the United States, the buyer will have to pay all customs' duties. The agreement provides that, at any time, the Association shall have the

privilege of taking over the venture by reimbursing the publisher for his total expenditure, plus six percent interest thereon, plus, possibly, a small nominal compensation for his trouble in the distribution. In that event the prices for the book would be materially reduced; and the Association's altruistic program would at once be initiated and very soon thereafter materialized. Meanwhile, the book will be sold by the publisher; and it is hoped that ere long it will have paid for itself.

Concerning the importance of this undertaking, Mr. Housholder, the newly elected president of the Association, in his telegram of acceptance of office sent to the annual meeting at Washington, D. C., under date of Sept. 26, 1932, stated that, if the Association would never accomplish anything more than the consummation of the Vocational Guidance project, the existance of the organization would be well justified. Again, a number of widely experienced, deep thinking, technical men have expressed the opinion that this movement of the A. A. E. is the most important and far-reaching undertaking ever inaugurated for the advancement of the Engineering Profession in America.

The object of this communication is to ask whether you will agree to serve (if possible, for the full term of ten years) as Chairman of the Lecturing Committee of your city (and, later on, its vicinity also, after money from a special fund has been provided for the expences incident to the making of short trips). It would be essential for a while that you refrain from spending any money on the lecturing, as there are no funds available at present for reimbursing expenses, and as the Association desires that the lecturers shall not be required to use any of their own cash.

In order to reduce to a minimum the trouble of lecturing, there will be sent to each Lecture Center an ample supply of multigraphed lectures that can be used either verbatim or preferably as a guide in addressing the students. These sample lectures would have to be treated as strictly private information; i.e. they should never be copied by the press, because that would destroy their freshness for repeated delivery. The Association will provide for each Lecture Group at least one copy of the book and an ample supply of folders, giving the Opinions of the Profession and the Press concerning the treatise and its raison d'être.

As Chairman your duties would be the following:

A. Securing the written promise of assistance in lecturing from other engineers of your city. These lecturers, if practicable, should be selected from all the main lines of the profession - civil, mechanical, electrical, mining, and chemical, or from as many thereof as feasible. It is suggested that members of the American Association of Engineers, especially where there is a local chapter thereof, should feel it their bounden duty to serve on the Lecturing Committees. In soliciting aid on this work, it might be well to point out, especially to the younger men, that they would lose nothing by doing it, because such public lectures would bring them into local prominence in a very effective and perfectly legitimate manner.

B. Listing all the worth-while high schools and other preparatory schools of your city and its vicinity, and arranging with their principals for annual lectures to their students on "The Engineering Profession."

C. Insuring that all the public libraries of your district purchase (preferably in bulk at reduced price) and keep on hand a suffi-

cient supply of copies of the book to meet the demands of all interested persons.

D. Dividing each year among the members of your Lecture Group the work of lecturing, and seeing that all the lectures are promptly delivered.

E. Reporting once or twice a year to the headquarters of the American Association of Engineers at Chicago concerning what your Group is going to do in the suceeding year and what it has already done, telling, if possible, some of the effects of the lectures on the people of your community who are interested in the study of engineering by either themselves or their young friends.

At the outset these various duties might require quite an amount of your time and attention; but, if you organize thoroughly, after the first year everything should proceed like clockwork.

I recognize the possibility that you may object to undertake to lecture about this book and the allied project until after the appearance of the treatise; but I hope that such is not the case, for that would tend to retard our progress. Will not the list of chapters and the well-known high standing of their various writers justify you in concluding that the book is going to be a truly first-class production in every important particular? You may be sufficiently familiar with the technical books and pamphlets I have written during the last half-century to conclude that I would not have my name connected in any way with an inferior publication, or one written in defective English - hence I hope that you will waive the consideration of any such doubt that would involve delay for our program.

If for any reason you cannot serve as Chairman of the local lecturing committee, can you find a suitable engineer in your city who would be willing to assume the responsibility? If so, please give him these papers and ask him to write me.

You may deem it consumate gall on my part to ask you to undertake such a lot of work. If so, please remember that it is ultimately for the benefit of the Engineering Profession in America and, consequently, of our entire nation; because the progress of mankind is primarily dependent upon the work of the engineers, and our book aims to improve greatly their status and efficiency.

Again, please consider that half a hundred of America's leading engineering specialists have given generously of their time to this undertaking, and that the Editors have worked long and faithfully in securing, compiling, and editing the MS. I myself have devoted two full years to the job, and shall continue to work upon it until it is completed. In addition, I have lent a large sum of money during these hard times to keep the enterprise going. When you consider these statements, you may decide that, after all, I am not quite as presumptuous in asking your aid as at first thought you may have imagined.

An early answer to this appeal would greatly oblige,

Yours sincerely and faithfully,

J. A. L. Waddell.

Chairman of the Committee on
Engineering Education of the
American Association of Engineers.

( NOT FOR PUBLICATION )

DRAFT OF SUGGESTED LECTURE TO SUB - FRESHMEN

Young Gentlemen:

The subject of my address to you today is "The Engineering Profession"; and the object of my discourse is to make you acquainted with that great and important calling; the ground that it covers, not only as a whole but also in its various ramifications and specialties; the characteristics of the men who are fitted for an engineering career and those of the men who are not; the pros and cons to be considered before adopting technics as a life's work; the compensations (both financial and otherwise) for engineers in comparison with those of men in other lines of activity; the possibilities of attainment in the various branches and specialties; what to do in order to succeed in engineering; and the ethics of the profession.

That engineering is the most fundamental of all the learned professions is conceded today throughout the civilized world by most of the intelligent and deep-thinking people. It is truly the mainspring of all material progress. It provides the numerous comforts and conveniences of modern life that make it worth living. It has evolved and established rapid transit by land, water, and air. It has produced instantaneous communication of thought even between peoples situated at opposite sides of the globe. It has harnessed many of the water-falls and applied their energy (theretofore totally wasted) for utilization in numerous ways. Through sewerage, drainage, and the eradication of noxious insects it has much improved the general health of mankind and prolonged human life. By irrigation it has changed the deserts and waste places of the earth into productive fields that regularly and certainly yield larger crops than do similarly-situated lands cultivated without artificial watering. It has provided bridges, many of enormous size and span-length, for both highway and railway traffic. It has

beautified our cities and our towns by means of systematically-planned streets and magnificent parks. It has developed our skyscrapers and other large buildings of both an artistic and a utilitarian nature to an extent never even dreamed of until late years. It has made practicable mining of all kinds on a most extensive scale and upon a sound, paying basis. It has produced enormous metallurgical plants that turn out metals of various kinds upon a stupendous scale. It has augmented many fold the production of lime, cement, and other materials of construction - all so necessary to world progress. It has secured wondrous results in the discovery, production, and utilization of numerous chemical products that are essential for modern manufactures. It has begun to mechanize farming upon an elaborate scale, and thus greatly to reduce the cost of crop raising and garnering. It has developed heating, lighting, water-supply, and ventilation to such an extent that the poor now live far more comfortably than did the rich three or four generations ago. It has furnished us with engines and machines of numerous kinds and sizes, varying from those of almost microscopic dimensions to those of tremendous proportions and capacities. It has built dams of towering heights and vast lengths to form reservoirs that constitute lakes of many miles in length and width, in order to impound water for power, irrigation, manufacture, and domestic use. It has widened, deepened, and regulated great rivers, so as to convert them from a menace to life and property into useful waterways for internal navigation, thus lowering materially the cost of bulk transportation; and it has constructed for a like purpose long and costly canals, as well as extensive harbors for the shelter and accommodation of vessels. It has built at enormous cost tunnels through hills and mountains, and subways beneath great cities.

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It is a book of about 550 pages, and contains not only all the information that I have outlined, but much more. It gives the individual opinions of half-a-hundred of America's most prominent and active engineers in all lines of technical enterprise, each one dealing mainly with his own specialty.

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ed all over the civilized world; its presentation to sub-freshmen is to be done for a series of ten years by a small coterie of engineers in each of our principal centers of population (100 in all); and eventually the enterprise is to be carried on by the aforesaid national engineering society in Chicago.

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siastic terms of this book and of the benefits that would result from its perusal and study. In order to prove that such a suspicion is untenable, I beg to call your attention to the folder I hold in my hand. It gives the "Opinions of the Profession and the Press," excerpted from reviews of the treatise accumulated from papers and periodicals published all over the civilized world. I am leaving here for your benefit a number of these folders, in the hope that many of you will read them from start to finish. Their perusal should give you absolute confidence in the dicta and advice of the numerous writers of the treatise.

A certain adverse criticism concerning this book has been made on several occasions, namely, that its great bulk will discourage many young men from reading it. The Editors' reply to this somewhat captious comment has invariably been that "If such be the case, it is really an advantage rather than a detriment, because any young man who would be thus discouraged is not built of suitable material for the Engineering Profession, and his exclusion therefrom would be a benefit instead of a loss."

In respect to the characteristics of men who are and men who are not fitted, either by Nature or training, to become engineers, much has been said by a number of the authors; and the Editors in their chapter on "Résumé and Conclusions" have summed up the opinions thus:

"After reading this book, the sub-freshman might propound to himself the following queries; and his answers thereto, if strictly honest, should materially help to settle the question of his suitability for technical life. The Editors' advice is appended to each question.

"Do you dislike the study of mathematics? If you do, keep out!

"Do you dislike either hard study or strenuous physical work? If you do, keep out!

"Do you object to discipline? If you do, keep out!

"Do you desire to obtain simply passing marks, in order to graduate? If so, keep out!

"Is your main ambition in life to earn large pay and to accumulate wealth? If so, keep out!

"Are you ambitious to make an honored name for yourself in the engineering world? If not, keep out!

"But, on the other hand, if you like mathematics fairly well, are truly fond of study, are not afraid of hard work, have more than average ability, and are ambitious but not mercenary, you may consider yourself eligible for membership in that important but most exacting learned profession - ENGINEERING."

There appeared a while ago in a college periodical a quotation from an unnamed writer that reads as follows:

"SPECIFICATIONS FOR A GOOD ENGINEER

"A good engineer must be of inflexible integrity, sober, truthful, accurate, resolute, discreet, of cool and sound judgment; must have courage to resist and repel attempts at intimidation, a firmness that is proof against solicitation, flattery, or improper bias of any kind; must take an interest in his work; must be energetic, quick to decide, prompt to act; must be as fair and impartial as a judge on the bench; must have experience in his work and in dealing with men, which implies some maturity of years; and must have business habits and a knowledge of accounts. Men who combine these qualities are not to be picked up every day. Still they can be found, and when found, they are worth their price; rather they are beyond price, and their value cannot be estimated by dollars".

From these quotations and from other remarks in the book it ought not to be difficult for a young man to settle the question of his suitability for an engineering career; but, in case of doubt, he might try a psychological test. It is being planned to arrange later on for the establishing, at certain times and places throughout the country, of free testing for technical mentality. The methods for making such tests have not yet been perfected - nevertheless such

tests are much better than no tests at all. Some rather primitive ones are now being tried in a few of our technical schools.

Let me impress strongly on your minds the fact that there is no place in engineering for a weakling, either mental or physical; and I seriously caution you against trying to enter it in opposition to the advice given in "Vocational Guidance"; for, if you do, you are almost certain to fail after spending uselessly a year of your time and probably all of one thousand dollars in hard cash. It would be far better to choose some other line of activity for which you may be better fitted.

In various portions of the book, both the pros and the cons of engineering life (in the main lines and also in the specialties) are candidly stated; and it would be well for you to consider these carefully, so as to make no mistake in selecting your calling. It is a sad thing for any man to be "a square peg in a round hole" or vice versa; and the book in question ought to prove the means of saving many men from such a disaster.

The reader will find scattered throughout the treatise a vast fund of valuable advice of a semi-personal nature that, in an engineering career, should prove of much benefit to him during his entire life. It is given by men who have made good - in many cases through trial and error - hence its value is simply inestimable.

One such bit of advice stands out prominently in many places, namely, "Do not select your specialty too soon". While it may be necessary at the outset to determine what kind of an engineering school to attend - chemical, civil, electrical, mechanical, or mining - nevertheless it is a serious mistake for any young man to study for a specialty in any one of those general lines. It is far better for him to wait until he has had several years of practice in both office and field before he settles upon a specialty; because the more varied an engi-

neer's early experience, the better chance he will have for success in his finally adopted line of technics.

Many of the authors dwell upon the necessity of a man's truly loving his work, if he is going to make a success in engineering. I desire to emphasize this statement with all the force that in me lies! It is my opinion that, lacking this characteristic, failure is a certainty. Not only must one love his own special work, but the very act of working should give him satisfaction and pleasure. Many men look upon work merely as a means for earning a living, and consider it a necessary evil. Such men form the rank-and-file of society, and never emerge from mediocrity. To be really successful in engineering (or in any other line of endeavor), one must work, Work, WORK! Never let anyone persuade you to doubt for an instant the correctness of this statement.

A perusal of the book may produce the impression that engineers, as a class, are underpaid rather than overpaid, especially when the large amount of labor and study necessary for success in any line of technics is taken into consideration. It is true enough that many engineers are not adequately compensated for their valuable services, but that is often due to their own individual fault, as well as to that of the profession as a whole; but do not forget the old Latin adage "tempora mutantur" - times change.

If one's object in life be merely the accumulation of wealth, there are better lines of activity for him than engineering; but if the matters of reputation and the general respect of one's fellows are prominent desiderata, there is no line of life more propitious and promising than the profession of engineer.

A few engineers have amassed great fortunes, due generally to unusual business ability; many have earned large salaries as executives; and some also have become comparatively wealthy as consulting engineers; but most of the members of the profession - the rank and file - have had to content themselves with

moderate incomes and with reputations of only local extent.

One of the most interesting lines of engineering practice is research; because there is nothing more absorbing for a certain type of mind than discovery or invention. Investigation in most of the divisions of technics requires personal experience in actual doing; but in some of them, such as chemical engineering, it is feasible for a recent graduate to start upon important research work under the close guidance of a more experienced man. When one is regularly retained on research, he should have it stipulated in writing that he is to share pecuniarily, at least to a modest extent, in all emoluments that come directly from his studies, especially when the line of investigation was originally suggested by him. An entire chapter of "Vocational Guidance in Engineering Lines", No. LI, is devoted to the subject of "Research Engineering."

Here is a fact that has long been recognized by a few of the best-posted Americans, and which is gradually becoming generally known; namely, that there is no better training for many lines of industry and business than an engineering education. A number of universities now offer courses of a general nature, which combine some fundamental engineering studies with instruction in business. It is a good combination for young men of intelligence and ability who have an inclination towards technics, but who are not sufficiently interested in engineering to undertake the large amount of arduous work required, first, to obtain a professional degree, and second, to make an outstanding success in practice - and there are plenty of such youths in America. They are capable of becoming good and useful citizens and successful men in various lines of business that are allied more-or-less closely with technics.

Chapter IV of the book, treating of "Engineering for Americans in Foreign Lands," will be found of deep interest to many young would-be engineers, especially those to whom the romantic features of engineering strongly appeal. That

there is often real romance therein is a recognized fact; and many young men are attracted towards an engineering career by this appeal to their imaginations. While the romantic tales of engineers, especially those who can legitimately be classified as soldiers of fortune, in the best sense of that term, are attractive to red-blooded American youths, it must not be forgotten that there is generally a lot of hardship and danger connected with engineering romance; and that these features are usually far more pleasing to read and hear about than actually to experience. I, therefore, desire to give you a word of warning against letting the glamour of life in foreign lands overcome your judgment and induce you to accept some position of doubtful permanence in preference to taking a more prosaic but more certain one in your own country. It will interest you, however, as I said previously, to read what the Editors have to say on the subject in Chapter IV.

Before closing this address, I desire to call your attention to a matter of some importance to a number of persons, namely, that the work of all concerned in the production and distribution of "Vocational Guidance in Engineering Lines" is of a purely altruistic nature; because there has been no payment of any kind for aid therein. The entire enterprise from start to finish has been entirely a labor of love on the part of all interested parties. The book is being sold at such low prices that any profit from the venture is prohibited - besides, many copies have to be presented gratis. The book is truly in the nature of a combination gift from certain old engineers of established reputation and the sponsor society, freely offered to the young men of our country who are considering the adoption of some line of engineering as their life's work.

In conclusion, I beg to express the hope that the few words I have said to you today may prove of service by steering some of you who are suited therefor by Nature into our splendid profession, and by discouraging others who are not so fitted from making an unsuccessful attempt to obtain an engineering education.

( NOT FOR PUBLICATION )

DRAFT OF SUGGESTED LECTURE TO SUB - FRESHMEN

Young Gentlemen:

The subject of my address to you today is "The Engineering Profession"; and the object of my discourse is to make you acquainted with that great and important calling; the ground that it covers, not only as a whole but also in its various ramifications and specialties; the characteristics of the men who are fitted for an engineering career and those of the men who are not; the pros and cons to be considered before adopting technics as a life's work; the compensations (both financial and otherwise) for engineers in comparison with those of men in other lines of activity; the possibilities of attainment in the various branches and specialties; what to do in order to succeed in engineering; and the ethics of the profession.

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Many of the authors dwell upon the necessity of a man's truly loving his work, if he is going to make a success in engineering. I desire to emphasize this statement with all the force that in me lies! It is my opinion that, lacking this characteristic, failure is a certainty. Not only must one love his own special work, but the very act of working should give him satisfaction and pleasure. Many men look upon work merely as a means for earning a living, and consider it a necessary evil. Such men form the rank-and-file of society, and never emerge from mediocrity. To be really successful in engineering (or in any other line of endeavor), one must work, Work, WORK! Never let anyone persuade you to doubt for an instant the correctness of this statement.

A perusal of the book may produce the impression that engineers, as a class, are underpaid rather than overpaid, especially when the large amount of labor and study necessary for success in any line of technics is taken into consideration. It is true enough that many engineers are not adequately compensated for their valuable services, but that is often due to their own individual fault, as well as to that of the profession as a whole; but do not forget the old Latin adage "tempora mutantur" - times change.

If one's object in life be merely the accumulation of wealth, there are better lines of activity for him than engineering; but if the matters of reputation and the general respect of one's fellows are prominent desiderata, there is no line of life more propitious and promising than the profession of engineer.

A few engineers have amassed great fortunes, due generally to unusual business ability; many have earned large salaries as executives; and some also have become comparatively wealthy as consulting engineers; but most of the members of the profession - the rank and file - have had to content themselves with

moderate incomes and with reputations of only local extent.

One of the most interesting lines of engineering practice is research; because there is nothing more absorbing for a certain type of mind than discovery or invention. Investigation in most of the divisions of technics requires personal experience in actual doing; but in some of them, such as chemical engineering, it is feasible for a recent graduate to start upon important research work under the close guidance of a more experienced man. When one is regularly retained on research, he should have it stipulated in writing that he is to share pecuniarily, at least to a modest extent, in all emoluments that come directly from his studies, especially when the line of investigation was originally suggested by him. An entire chapter of "Vocational Guidance in Engineering Lines", No. LI, is devoted to the subject of "Research Engineering."

Here is a fact that has long been recognized by a few of the best-posted Americans, and which is gradually becoming generally known; namely, that there is no better training for many lines of industry and business than an engineering education. A number of universities now offer courses of a general nature, which combine some fundamental engineering studies with instruction in business. It is a good combination for young men of intelligence and ability who have an inclination towards technics, but who are not sufficiently interested in engineering to undertake the large amount of arduous work required, first, to obtain a professional degree, and second, to make an outstanding success in practice - and there are plenty of such youths in America. They are capable of becoming good and useful citizens and successful men in various lines of business that are allied more-or-less closely with technics.

Chapter IV of the book, treating of "Engineering for Americans in Foreign Lands," will be found of deep interest to many young would-be engineers, especially those to whom the romantic features of engineering strongly appeal. That

there is often real romance therein is a recognized fact; and many young men are attracted towards an engineering career by this appeal to their imaginations. While the romantic tales of engineers, especially those who can legitimately be classified as soldiers of fortune, in the best sense of that term, are attractive to red-blooded American youths, it must not be forgotten that there is generally a lot of hardship and danger connected with engineering romance; and that these features are usually far more pleasing to read and hear about than actually to experience. I, therefore, desire to give you a word of warning against letting the glamour of life in foreign lands overcome your judgment and induce you to accept some position of doubtful permanence in preference to taking a more prosaic but more certain one in your own country. It will interest you, however, as I said previously, to read what the Editors have to say on the subject in Chapter IV.

Before closing this address, I desire to call your attention to a matter of some importance to a number of persons, namely, that the work of all concerned in the production and distribution of "Vocational Guidance in Engineering Lines" is of a purely altruistic nature; because there has been no payment of any kind for aid therein. The entire enterprise from start to finish has been entirely a labor of love on the part of all interested parties. The book is being sold at such low prices that any profit from the venture is prohibited - besides, many copies have to be presented gratis. The book is truly in the nature of a combination gift from certain old engineers of established reputation and the sponsor society, freely offered to the young men of our country who are considering the adoption of some line of engineering as their life's work.

In conclusion, I beg to express the hope that the few words I have said to you today may prove of service by steering some of you who are suited therefor by Nature into our splendid profession, and by discouraging others who are not so fitted from making an unsuccessful attempt to obtain an engineering education.

150 Broadway
New York, N.Y.
March 10, 1932

The Honorable,
The Board of Trustees
of Columbia University

Gentlemen:

At the close of a conference with Gen. Wm. Barclay Parsons concerning the project of the American Association of Engineers to elicit, edit, and publish a book, "Vocational Guidance in Engineering Lines," written by leading specialists and educators in the main branches of engineering, the General advised us to address you in writing upon the subject. This we now do.

## HISTORY OF PROJECT

In recent years, prominent statesmen, industrialists, and educators all over the United States have seen the necessity for starting the youth of our nation in those careers for which they are best fitted. Such men as President Herbert Hoover, Dr. Owen D. Young, Dr. Nicholas Murray Butler, and others have voiced their belief in the value of disseminating authentic information about the many vocations open to young men. The American Association of Engineers in 1926 embarked on an objective program of vocational guidance in engineering lines. Little was accomplished, however, before January 1, 1931. Since that date, the present committee has been working steadily in preparing a book addressed primarily to junior and senior students in the high schools throughout the country. Fifty-two leading engineers and educators have collaborated with them on this important enterprise, and now the manuscript of the book is ready for the printer.

## DESCRIPTION OF BOOK

The book consists of sixty chapters, eight by the editors and fifty-two by eminent specialists, besides an Appendix, "Who's Who in the Book." (List of chapters and authors given to Gen. Parsons.) Each chapter describes briefly the work of one of the main lines or specialties of engineering, tells what the opportunities are, what training is required, and what rewards may be expected. The book expounds what the Engineering Profession really is, and its great importance to the world. Essential characteristics of an engineer are noted, and there is constant warning against too early specialization. Much valuable general and specific advice is given, with particular emphasis on the question of who are and who are not suited by both nature and training for entrance into the profession.

The book will contain some 570 pages, including 50 photographic illustrations of outstanding engineering constructions and 17 photostated letters from eminent men commending the undertaking. (List of endorsers given to Gen. Parsons.) It will be an excellent model of technical English. It will be valuable not only in the high schools, but also in the colleges, as a textbook descriptive of the wide scope of engineering.

## OBJECTS OF THE UNDERTAKING

The prime object of the treatise is to induce the best, most courageous, and most ambitious young students to undertake the systematic study of engineering, and to discourage the unfit, the timid, and the weaklings, who too often succeed in entering the freshman classes of our engineering institutions, but seldom manage to graduate. In many colleges, only 40 students graduate out of every 100 who enter. The unsuccessful endeavor to teach technics to the numerous unqualified students is exceedingly expensive, and constitutes a glaring violation of the first principles of economics.

The beneficial accomplishments to be attained include:

A. A material reduction in the cost of teaching the lower classes in all schools of technics.

B. The saving of a large amount of money that would be wasted by low-grade students in a course from which they are predestined to be dropped.

C. The exclusion of incompetent men from technical institutions, and saving them from the disgrace and discouragement of being flunked out.

D. The raising of the standard of education. Poor students invariably hold back the good ones. With the elimination of incompetent students, the curriculum may be improved to suit the capacity of bright and capable students. More and better courses may be given.

E. Increasing the capacity of young engineers and enabling them to do better work. Colleges will graduate far-better-trained men than heretofore, thereby directly improving the engineering profession as a whole, and indirectly enhancing the progress and prosperity of our nation.

## MODUS OPERANDI FOR ACCOMPLISHMENT

The book is to be issued by the Editors, who will also secure world-wide reviews and compile therefrom folders that will give opinions of the profession and the press concerning the book and the project as a whole. They will distribute these folders among high-school and preparatory-school principals and vocational counsellors, the members of the Society for the Promotion of Engineering Education, and the important public and private libraries. The Editors will also arrange for an annual series of lectures to high-school students on the Engineering Profession, to be given by leading engineers in all the great centers of population of the country during the next five or six years. These lectures will be designed to focus attention upon the book. Eventually the headquarters of the American Association of Engineers at Chicago will undertake the sale and distribution of the book and the control of the lecturing.

The measure of success of this movement will be gaged by the amount of publicity that is given to it and by how prominently the book is brought to the attention of the student youth of our country.

## PRICES OF BOOK

American publishers would ordinarily make a gross charge of $5.00 per copy for a book of this size and character; but we would ask only $1.00 from high-school students. To others, the price would be $2.00 with 25% discount to booksellers. Many copies would be given away to meet special conditions. A general gratis distribution, however, would be absolutely inadvisable, for it would engender a feeling of lack of value.

## MONEY NEEDED FOR PROJECT

The Editors figure that, in order to provide for the program just outlined, there should be a minimum allowance of $15,000 at the outset to cover the cost of issuing the book, reviewing, and advertising, and to defray the incidental expenses of the first year's lecturing, including possibly a few paid professional lectures; and an additional $3,000 per annum for five years to cover traveling, and sundry minor expenses of lecturing, production, and distribution.

This money we desire to secure from a Patron; and we hope that Columbia University will be that Patron. An accounting would be rendered by the Editors upon the completion of their work; and thereafter an annual accounting would be made by the American Association of Engineers. It is interesting to know that a conservative estimate of the cost of the book to date, based upon a valuation of the time donated by the authors and editors, amounts to $66,000. This, of course, is a voluntary contribution to the success of the enterprise.

## ADVANTAGE TO PATRON

Columbia University is contemplating a program of engineering expansion destined to make her an unchallenged leader in all phases of technical education. To back a dignified undertaking such as this, in which ranking engineers and educators all over the country have participated as authors, would not only enhance her prestige and present high standing, but would stamp her as the leader in the field of expert vocational guidance. The title on the cover of the book, recording the name of its Patron, would bring Columbia University for many years more prominently than ever to the attention of the most desirable candidates for technical education.

Respectfully submitted,

J. A. L. Waddell,
Frank W. Skinner,
Harold E. Wessman,
Editors.

WADDELL & HARDESTY
CONSULTING ENGINEERS
CABLE ADDRESS: WADDELLJE
CODES: WESTERN UNION AND A.B.C.
150 BROADWAY
NEW YORK

J. A. L. WADDELL, D. E., LL.D.
SHORTRIDGE HARDESTY, LL.D., C.E.

ASSOCIATE ENGINEERS
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C. W. YELM, C.E.

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BARCELONA, SPAIN
PARIS, FRANCE

June 19, 1931.

Sir Arthur Currie,
Chancellor of McGill University,
Montreal, Canada.

Dear Sir Arthur:

From the enclosed list of chapters of "Vocational Guidance in Engineering Lines" (which is almost, but not quite, final) you will see that the last chapter is on "Who's Who in the Book." In it we give a short biographical sketch (similar to those of Who's Who in America) of each writer, each endorser, and each prominent person who is mentioned in the editorial portions of the work. As you do not appear in Who's Who in America, and as I do not possess the corresponding book for Canada, I am going to ask that you do me the favor to send me a sketch of your career. Enclosed are a few of the biographical sketches to serve as samples. Of the half dozen specimens I am sending, the record of Dr. Nicholas Murray Butler ought to prove the most useful, as your career and his are somewhat alike — especially in regard to distinctions. Please be sure to include all of yours of every kind, not forgetting your War record.

I am sorry to trouble you in this way, but I do not see how to avoid doing so.

With kindest regards, and reiterated thanks for your kindness in endorsing our altruistic professional project,

Sincerely and faithfully yours,

J. A. L. Waddell.

JALW-KEP

# LIST OF CHAPTERS

*for*

# VOCATIONAL GUIDANCE IN ENGINEERING LINES

---



H. J. Bertsch Klein

Agricultural Engineering — Dr. Thomas D. Campbell.

June 22, 1931

Dr. J. A. L. Waddell,
150 Broadway,
New York.

Dear Dr. Waddell,

At your request I am enclosing herewith copy of biographical sketch which appears in the Canadian "Who's Who". I think this should give you the information you want.

With best wishes,

I am,

Ever yours faithfully,

Principal

# DOCKET STARTS:

VOCATIONAL GUIDANCE IN ENGINEERING LINES — OUTLINE

June 12, 1931.

Messrs. Skinner, Waddell and Wessman,
American Association of Engineers,
20 Vesey St.,
New York, N.Y.

Dear Sirs,

I believe that your association is to be commended for its attempt to give advice and direction to those young people who contemplate entering Engineering Schools.

In any school the student, after all, is the important element; and unfortunately all schools at present seem to be crowded with many students who have mistaken their calling. This means a bad beginning in life for themselves, it has untoward results also for other students in the school, and for education generally.

I heartily wish that your effort to counteract such tendencies, by preparing a book on "Vocational Guidance in Engineering Lines", may have great success.

Yours faithfully,

Principal

WADDELL & HARDESTY
CONSULTING ENGINEERS

J. A. L. WADDELL, D. E., LL.D.
SHORTRIDGE HARDESTY, LL.D., C.E.

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C. W. YELM, C.E.

CABLE ADDRESS: WADDELLJE
CODES: WESTERN UNION AND A. B. C.

150 BROADWAY
NEW YORK

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BOGOTA, COLOMBIA
BARCELONA, SPAIN
PARIS, FRANCE

April 8, 1931.

Sir Arthur Curry,
President of McGill University,
Montreal, Canada.

Dear Sir Arthur:

Once at a McGill dinner in New York City you did me the honor of approving some of my technical writings, for which I felt very much flattered. In view of that circumstance, I take the liberty of bringing to your attention a piece of purely altruistic work on which I am at present engaged, and in which I am taking an intense interest. I refer to the proposed production by the American Association of Engineers of a rather voluminous book entitled "Vocational Guidance in Engineering Lines" to be written by some fifty or more technical men of the highest standing in the various branches and specialties of engineering. I am acting as Chairman of the Committee to elicit and edit the treatise, with my two good friends, Mr. Frank W. Skinner and Prof. Harold E. Wessman, as collaborators.

Enclosed are the following papers:

1. A Statement by the Editors of the objects and scope of the undertaking.
2. A List of Chapters up to date, with the names of those who have agreed to write them. (N.B. There are only four left to place).
3. Photostated letters from President Hoover, Dr. Pupin, and Dr. Chas. M. Schwab endorsing our project.

The object of these endorsements, which are to be included as photostats in a collection at the beginning of the book, is to produce a profound impression upon the minds of the youths that we desire to reach, and upon those of their parents or guardians, concerning the authentic character of the book and the reliability of its numerous writers, so that they will be induced to read its contents and profit thereby.

Would you be willing to send us some such one-page endorsement upon your official stationery, so that we may have it photostated to include in our collection? A few stirring words of approval from you would carry great weight with our readers and would be gratefully appreciated by the Editors.

Sincerely and faithfully yours,

JALW-KEP

J. A. L. Waddell.

STATEMENT BY THE COMMITTEE ON VOCATIONAL GUIDANCE IN ENGINEERING LINES OF THE AMERICAN ASSOCIATION OF ENGINEERS

New York City, Jan. 23, 1931.

For several years past the American Association of Engineers has had in mind the preparation and wide distribution of a book on "Vocational Guidance in Engineering Lines," to be written by leading American specialists in the various branches of technical activity; and the undersigned have been appointed as a committee to secure the MS. therefor and to edit and publish the work.

This book is the first part of a program to secure for the engineering schools of our country the best possible students, and to eliminate the many unfit who apply for admission, thus attaining numerous important desiderata, among which might be mentioned the following:

A. A large and useless expenditure of money would be avoided by reducing to a minimum the number of students that are dropped because of lack of ability or diligence. The amount of money wasted annually by our technical schools, in an endeavor to impart instruction to students who are absolutely unfit to assimilate it, would, if computed, be simply appalling!

B. By weeding out ab initio the incompetents, the ultra-slow thinkers, and the other undesirables, the pace set for the classes would be materially augmented, thus enabling more ground to be covered - and better covered - by the curriculum. It is a well known fact that, in most technical schools, the course has to be regulated to suit the average capacity of the entire class, or even that of its lower half, thus discouraging and impeding the capable students and inviting laziness.

C. It is far better for any applicant for entrance to be rejected at the outset than to enter only to be dropped for inability. A "flunk-out" seldom recovers from the disgrace of being dropped, because it stigmatizes him forever as a failure, especially in his own consciousness, and thus tends to prevent his achieving even moderate success in life. If a man of somewhat inferior ability be greatly desirous of entering some line of practical technics, he could do so by attending a trade school or some other type of institution that is suited to his mediocre capacity. After two or three years, if he were truly earnest and hard-working, he could thereby attain to a fairly successful technical career in some minor position, although he would never become eminent. In case it be found that a mistake was made by sending a boy to a trade school, it could easily be rectified by transferring him to a higher grade institution. This, it is true,

would involve for the individual an extra year's study; but, in view of the doubt about his suitability, the additional training would certainly be beneficial.

D. After a few years, the result of this rigid selection of entering freshmen would be to improve materially the standing of all technical graduates, and, therefore, of the engineering profession; to augment the productive capacity of engineers in general; and, consequently, to increase the prosperity of the entire nation. Again, by placing American engineering upon a still higher plane, the status of the U.S.A. in practical science, as compared with the other nations of the world, would be decidedly enhanced.

To accomplish the desired results of this undertaking, the American Association of Engineers has arranged and initiated the following program:

E. It plans to secure the patronage of a prominent American millionaire philanthropist to furnish the money to prepare and issue the proposed book, to advertise it adequately, and to ensure its effective distribution for a period of at least twenty years.

F. The Head Office of the Association will attend to the actual work involved in advertising and distributing the book (both gratis and by sale at an unusually low price).

G. The Association, with the aid of its chapters, will coöperate with vocational counselors and arrange for annual lecturing to students in high schools and large preparatory schools in the principal business centers of the country by engineers of high standing, at the psychological times, upon the objects, attainments, and rewards of the Engineering Profession; upon the characteristics of those who are and those who are not endowed by nature to make a success in it; and upon how such success can be attained by the men who are gifted with the requisite ability, energy, and ambition.

H. Again, through all of the chapters of the Association, arrangements will be made for holding, at certain fixed times and places, free examinations of candidates for technical courses of instruction, in order to determine their suitability, or the contrary, for engineering careers; and similar special examinations of individuals might be held at any time upon the payment of a small fee.

Enclosed is a schedule of chapters, subject to slight modification.

While we would not arbitrarily limit the length of any paper, fearing that so doing might impair consideration of important matters, we are of the opinion that the best average length would be from 2,000

to 3,000 words.

The ground to be covered by each writer will be left mainly to him, but should generally include all or most of the following topics:

Pros and cons anent the specialty.
Kinds of men fitted or unfitted therefor.
Best preparatory scholastic training.
Brief statement indicating the nature of the collegiate technical training pertaining particularly to the specialty.
Work usually covered in the practice thereof.
Principal allied lines of engineering and the general knowledge that is necessary concerning these.
Responsibility involved in practicing the specialty.
Reputation and pecuniary rewards to be gained.
Probable future of the specialty.
How to attain success therein.

It is our intention to include in an Appendix a few biographical notes concerning each writer and the salient features of his professional career, so that readers may see who are the men tendering information and advice.

It should not be forgotten that many of the readers of the book will be very young men, or even boys, and their parents, most of whom have probably received a rather meager education; hence the style of the writings should not be so exalted as to fail to reach the comprehension of such persons.

It is hoped by the Committee that these suggestions will not promote a sameness nor eliminate a strong individuality in the several treatments. While the primary object of the book is "usefulness," it should be not only readable and interesting but also an unusually fine example of technical literature.

Respectfully submitted,

Frank W. Skinner.

J.A.L. Waddell, Chrmn.

Harold E. Wessman.

Committee.

April 7, 1931

# LAYOUT OF PROPOSED BOOK ON VOCATIONAL GUIDANCE IN ENGINEERING LINES

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Foreword
by
The Patron

Endorsements
by
Eminent Men

Preface
by
The Editors

Chapter I
Introduction
by
The Editors

Chapter II
The Engineering Profession
by
The Editors

Chapter III
Engineering for Americans
in Foreign Lands
by
The Editors

Chapter IV
Vocational Guidance
by
The Editors

Chapter V
Ascertaining of Mental Capacity
and Special Talents
by
Dr. Harry D. Kitson

Chapter VI
Civil Engineering in General
by
The Editors

Chapter XVIII
Aerial Photographic Surveying
by
George C. Diehl

Chapter XIX
Aeronautical Engineering
by
Prof. Alexander Klemin

Chapter XX
Architectural Engineering
by
C. T. Purdy

Chapter XXI
Automotive Engineering
by

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Chapter XXII
Bridge Engineering
by
Dr. Shortridge Hardesty

Chapter XXIII
Canal Engineering
by

---

Chapter XXIV
Cement & Lime Engineering
by
Duff A. Abrams

Chapter XXV
Ceramics Engineering
by
Prof. A. F. Greaves-Walker

Chapter XXVI
Constructional Engineering
by
Frank E. Skinner

Chapter XXVII
Dam Engineering
by
Edward Wegmann

Chapter XXVIII
Electric-Railway Engineering
by

---

Chapter XXXIX
Land and City Surveying
by
Frank W. Tuttle

Chapter XL
Municipal Engineering
by
Dr. C. E. Grunsky

Chapter XLI
Oil and Gas Engineering
by
C. V. Milliken

Chapter XLII
Port Engineering
by
John P. Coloman

Chapter XLIII
Power Machinery Engineering
by
William F. Ryan

Chapter XLIV
Railroad Engineering
by
L. F. Loree

Chapter XLV
Railway-Mechanical Engineering
by
Marion B. Richardson

Chapter XLVI
Reclamation, Drainage, and Irrigation Engineering
by
George B. Hills

Chapter XLVII
Reinforced-Concrete Engineering
by
A. W. Lord

Chapter XLVIII
Research Engineering
by
Dr. J. A. L. Waddell

Chapter XLIX
River-Protection-and-Regulation Engineering
by
The Morgan Engineering Company

THE WHITE HOUSE
WASHINGTON

March 16, 1931

Messrs. Skinner, Waddell & Wessman
American Association of Engineers
20 Vesey Street
New York City

Gentlemen:

I have read with interest the proposal of the Association to prepare an authoritative book on Vocational Guidance in Engineering Lines, through contributions of experienced authorities for the benefit of prospective engineering students. I believe it is of importance and should receive active professional cooperation in order that it may become the success which it deserves.

Yours faithfully,

Herbert Hoover

MICHAEL I. PUPIN
ONE WEST SEVENTY-SECOND STREET
NEW YORK CITY

March 29, 1931.

J. A. L. Waddell, LL.D.,
150 Broadway,
New York City.

My dear Sir:

The proposed publication "Vocational Guidance in Engineering Lines", written by leading American specialists will do an enormous amount of good, if carried out on a scale which is worthy of the undertaking. It will give a great help not only to the engineering schools of the country and to the young students, but also to the parents of these students. The young students and their parents should be told, before it is too late, what engineering means and on what qualities of mind and body success in engineering pursuits depends. It will aid our engineering schools to formulate a program of engineering instruction which can be adopted by all of them and thus create a uniformity in engineering education which is so desirable in this country.

The program formulated by the American Association of Engineers promises to guide this laudable undertaking to a successful issue.

Yours sincerely,

M. I. Pupin.

# Bethlehem Steel Corporation

25 BROADWAY-CUNARD BUILDING

Charles M. Schwab,
Chairman.

New York, March 30, 1931.

Mr. J. A. L. Waddell,
Waddell & Hardesty,
150 Broadway,
New York City.

My dear Mr. Waddell:-

The effort of the American Association of Engineers to prepare this book on "Vocational Guidance in Engineering Lines" is a service to the young people of our country.

One of the greatest aids to happiness and satisfaction in life is to be doing that work which we are best fitted to do.

The development of the engineering field has been so vast in the past generation that few can appreciate the great differences and the opportunities which exist in the engineering profession.

The young people of today are very fortunate in being able to have such a book available as a guide to them in the consideration of engineering as a career. The book is also useful to any one who is interested in the subject and would like to have a general picture of engineering as it is today.

I am pleased to commend this constructive educational effort.

Sincerely yours,

C M Schwab

April 14, 1931.

Dr. J.A.L.Waddell,
Messrs. Waddell & Hardesty,
Consulting Engineers,
150 Broadway,
New York, N.Y.

Dear Sir,

Sir Arthur Currie is on his way to Canada at present, after an absence of some months in the Orient, but I am sure he will be glad to comply with your request and shall place your letter for his early attention upon his return to the University.

Yours very truly,

CWS

**DOCKET ENDS:**

VOCATIONAL GUIDANCE IN ENGINEERING LINES – OUTLINE

June 12, 1931.

J. A. Waddell, D.E., LL.D.,
150 Broadway,
New York. N.Y.

Dear Mr. Waddell,

Your letter of April 8th was acknowledged from my office some weeks ago. It is only now that I have been able, after a prolonged absence and many arrears to overtake, to comply with your request.

This I very cheerfully do, on the page enclosed.

With all good wishes for your undertaking, and kind regards personally,

Yours faithfully,

Principal

WADDELL & HARDESTY
CONSULTING ENGINEERS

J. A. L. WADDELL, D. E., LL. D.
SHORTRIDGE HARDESTY, LL. D., C. E.

ASSOCIATE ENGINEERS
W. G. WILLIAMS, C. E.
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BARCELONA, SPAIN
PARIS, FRANCE

June 16, 1931.

Sir Arthur W. Currie, Principal,
McGill University,
Montreal, Canada.

Dear Sir Arthur:

Please accept very many thanks for your letter of the 12th inst. and for your kind compliance with my request that you endorse our movement to prepare a book on "Vocational Guidance in Engineering Lines." I have had your letter photostated, and it will be reproduced at the beginning of the book with a number of similar one-page letters. I feel confident that your say-so will have great influence on the boys and young men whom our American Association of Engineers will endeavor to approach in the future.

With kindest regards and best wishes, I am

Yours very sincerely,

J. A. L. Waddell.

JALW-KEP

JOURNAL

- of the -

WESTERN SOCIETY of ENGINEERS

# The South Manchuria Railway and Its Allied Constructions

Dr. J. A. L. Waddell, M. W. S. E.

Excerpted from

Vol. XXXV APRIL, 1930 No. 2

# WESTERN SOCIETY OF ENGINEERS

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Telephone: Randolph 1736

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# The South Manchuria Railway and Its Allied Constructions

By DR. J. A. L. WADDELL*, M. W. S. E.

*Here is an instance where a railway is being operated at a profit, producing sufficient revenue to finance varied public works and industrial operations during the period of development of great national resources. The author is an experienced observer and gives an interesting picture of the remarkable engineering and economics resulting in the conversion of a war-torn area into a thriving, prosperous territory that will some day take a prominent place in world commerce. Engineers have had a prominent role in this development.* EDITOR.

NEAR THE END of last September, my official duties in China took me as far north as the city of Mukden, where, according to an arrangement of two or three months' standing, I immediately became the guest of the South Manchuria Railway Company, with the intention of making an informal inspection of its line and its numerous accessory works. Being somewhat pressed for time, I did not travel north to Harbin, as I should have liked, but had to content myself with seeing the cities of Mukden, Dairen, and Port Arthur and inspecting from an observation car the railway between the first two of those places.

During the preceding summer the principal engineer of the company, M. Fukuda, had traveled specially to Shanghai, in order to spend a few days with me, and had brought with him a formal invitation from his company for me to travel through South Manchuria as its guest, which invitation I had accepted provisionally, because of the uncertainty of my future movements.

Mr. Fukuda, who had received three years' training in bridgework in my Kansas City office, nearly a quarter of a century previously, and who had afterwards visited me in my New York office, traveled with me in South Manchuria, and most courteously showed me practically everything of major interest, and incidentally gave me two days' shooting on woodcock and quail in the hills around Port Arthur.

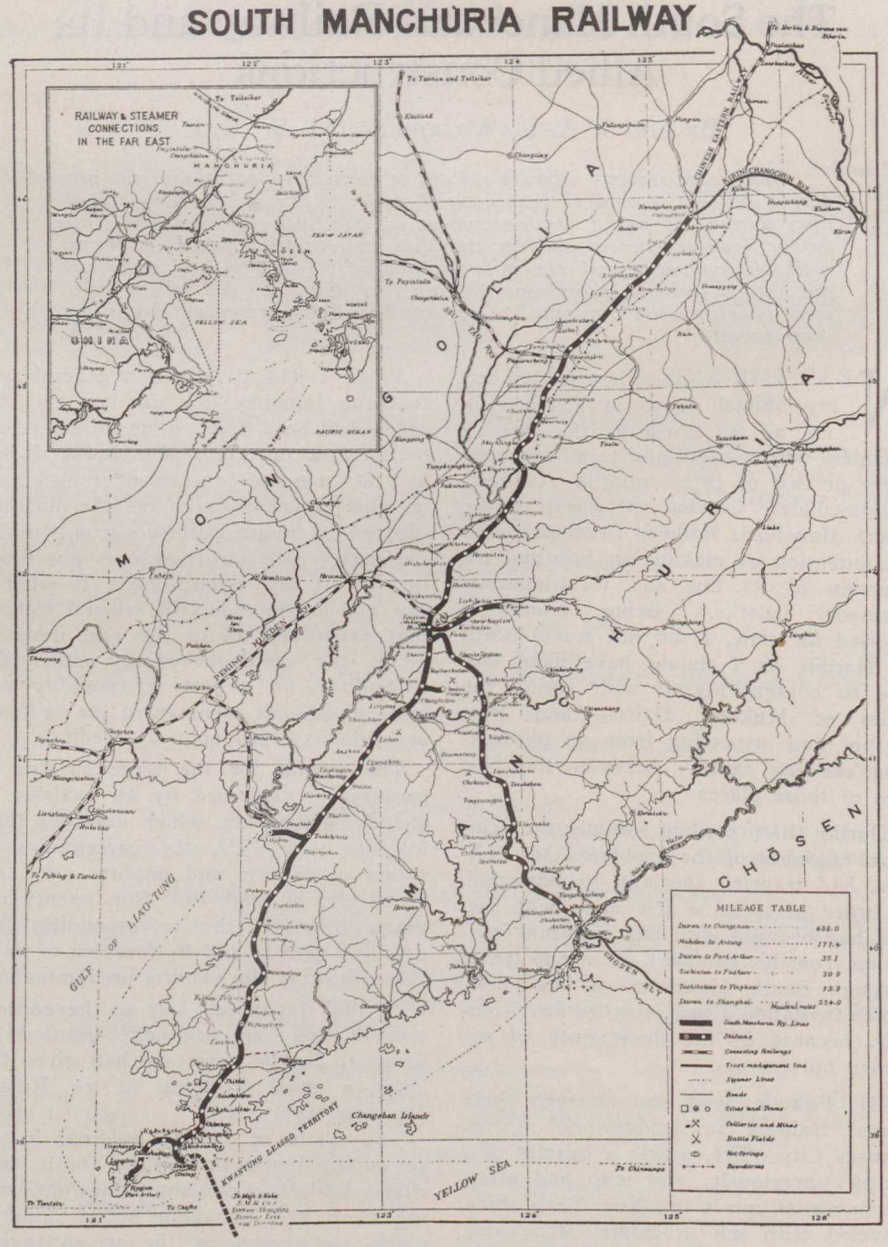
While I had known in a general way that the Japanese, for the last two decades, had been doing some good development work in South Manchuria, I had had no adequate conception of its extent or thoroughness, nor of the method adopted for financing the construction. To say that I was surprised does not begin to express my astonishment at what I saw and heard, especially when I learned that essentially all of the said development was accomplished by either the expenditure of a portion (possibly one half) of the net earnings of the railroad, or by loans based upon its credit.

The reason for the large surplus of earnings is explained by an analysis of an official diagram, which indicates that, for the year 1927, the percentages of values of exports and imports were, respectively, 60 and 40. For twenty-one years, however, the corresponding figures averaged 54 and 46, fourteen of these years showing the exports predominating.

In 1905 Japan fell heir to the concession of this line, originally granted by China to Russia, after she had given the latter a good drubbing in the Russo-Japanese war.

The extent of Japan's holdings in the Kwantung Peninsula and the South Manchuria Railway Company's lines, amounting in length to about seven hundred miles, are shown on the accompanying map (Fig. 1). The original lease for these holdings was confirmed by China in 1905 and was extended in 1915 up to the year 1997, the area covered in the lease being only 1,400 square miles—about 0.4 per cent of the total area of Manchuria.

*Honorary Technical Advisor to the Ministry of Railways of the National Government of China.




Beside the lease of territory, the property turned over by Russia to Japan consisted of the railway between Port Arthur and Changun, with light rails, heavy grades, and no rolling stock; the badly damaged town of Port Arthur; a mere nucleus of the City of Dairen with a half-constructed, shallow harbor; and four very small towns along the railway line.

Not being desirous of officially operating a railway in a foreign country, the Japanese Government, without delay, turned over its entire holdings in Man-

churia to a specially-formed company, composed exclusively of Orientals, to own, operate, and expand, but reserving a half interest in the capital stock with a fair portion of the emoluments.

In addition to reconstructing the Russian line and making it into a first-class, thoroughly - equipped, standard - gauge railway, with numerous new branches and extensions, the company has launched out into various allied activities, among which may be mentioned the following:

Highways
Tramways
Bridges
Tunnels
Streets
Parks
Harbors
Breakwaters
Wharves
Steamship lines
Railway terminals
Postal, telegraph, telephone, and wireless systems
Coal and other mines
Afforestation and orchards
Experimental farms
Summer resorts
Waterworks
Sewerage
Power plants
Gas works
Hospitals
Courthouses and City Halls
Hotels
Dwelling houses
Banks
Schools, colleges, universities, and technical institutions
Museums
Laboratories
Libraries
Observatories
A geological institute
Warehouses or godowns
Cement, lime, brick, and ceramic plants
Mills of various kinds
Factories
Glass, salt, silk, and iron works

Nearly all of these constructions are designed and built on first-class, modern, and economic lines; for the Japanese Government, during the last half century, has been constantly sending its engineers abroad to study what is latest and best in every line of technical activity—and they certainly know how to profit by their observations. Moreover, they are not content with being merely copyists; for, especially of late years, they have been evolving improvements on foreign practice — for example, the wonderfully effective manner in which they handled their medical department in the Russo-Japanese war, setting a record for the entire world.

The following photographic illustrations will serve to verify the preceding general statement concerning the character and quality of the Japanese constructions in South Manchuria:

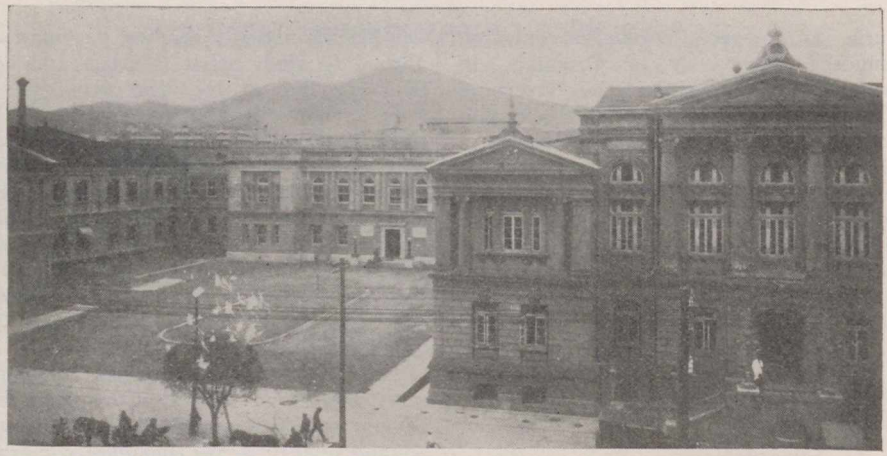
A careful study of some of these photographs will indicate that, in the development of South Manchuria, the Japanese engineers not only were influenced by considerations of efficiency and economy but also that they paid due attention to the important feature of aesthetics. No one can travel around the cities of Dairen and Mukden without being forcibly impressed by the artistic character of their architecture.

Besides the three large cities already mentioned, the company has reconstructed and developed a large number of old Chinese towns along the lines of its railway system and has built many new ones, the principal locations being Liaoyang, Changchung, Fushun, Anshan, and Antung.

The natural resources of Manchuria adjacent to and feeding the railway system, arranged, as nearly as may be, in the order of their importance, are coal, timber, shale-oil, and iron.

The principal agricultural products are beans of several varieties (including the noted "soya"), kaoliang (or sorghum), millet, corn, and wheat. The total output of agricultural products for 1927 was estimated at 20,000,000 tons, the value of the beans, bean-cake, and bean-oil alone being some 800,000,000 yen ($400,000,000).

The principal goods transported are beans, bean-cake, and other staple products, and the company's Fushun coal. The export traffic being greater by fifty



*In Fig. 2 is shown the Central Office at Dairen of the South Manchuria Railway Company*

*Fig. 3 represents an apartment house for railroad employees at Dairen*

*Fig. 4 shows a training school for railroad employees*

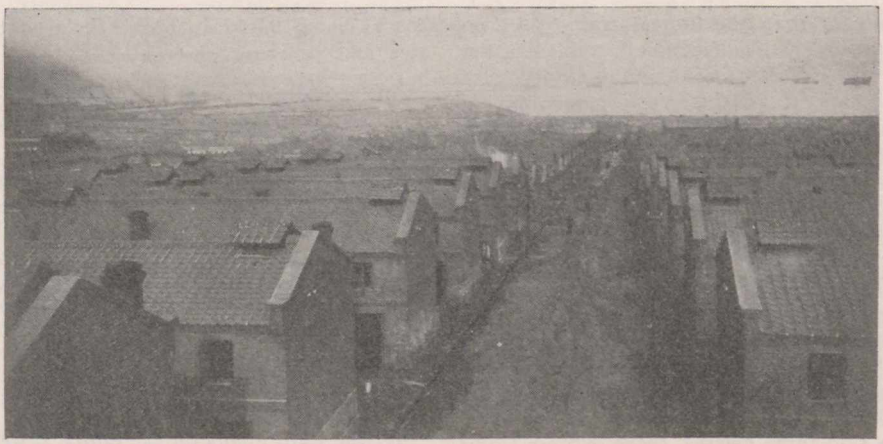


*Fig. 5 indicates type of dwelling houses provided by the company for its Chinese coolie labor*

*Fig. 6 illustrates a research laboratory at Dairen for Manchurian products*

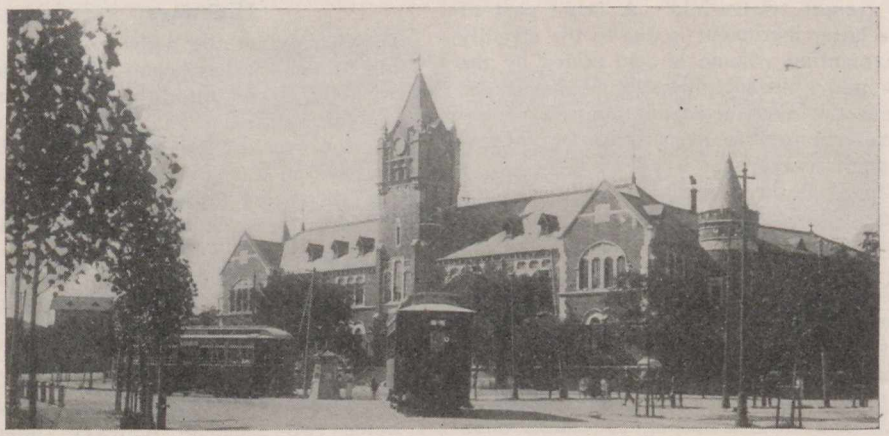


*Fig. 7 is the police station at Dairen, the property of the Japanese Government*

per cent than the import traffic involves unavoidably an uneconomic condition, due to the necessity of moving empty cars, although it is this very inequality, as before indicated, that has caused the thriving condition of the country in general. The profit from passenger transportation comes mainly from the third-class travel, the express traffic being operated at a loss.

The present rates for passenger travel are: first class, 7 sen per mile; second class, 4½ sen; third class, 2½ sen. There is an additional charge for travel on express trains, amounting to three, two, and one yen per five hundred miles for the said three classes, these express trains being equipped with sleeping and dining cars. Special temporary reductions in rates for both passengers and freight have occasionally been made by the company, in order to meet unusual conditions, such as famine relief, moving of refugee emigrants, and the encouragement of local industrial developments.

Under ordinary conditions, travelers between Europe and Japan or China can save both time and money by utilizing the South Manchuria Railway; but at present the friction between China and Russia is interfering.

In spite of serious obstacles, such as banditry and numerous threats of war, there has been a remarkable growth of traffic in the last two decades; for the number of passengers carried per annum has increased five-fold, and the tonnage of freight twelve-fold. A large part of the latter increment is due to the steadily augmenting volume of coal mined by the company, but a cosiderable portion comes from the ever-increasing amount of agricultural produce, especially that of the Manchurian bean.

In 1908 the company employed some three thousand officials, ten thousand "workers," and thirty thousand coolies; and in 1928 these figures were augmented, respectively, to about nine thousand, twenty-five thousand, and seventy thousand—an average increase of 142 per cent.

In respect to specific developments, I shall make the following comments on a few of the more important ones, my remarks being based on both official statistics and personal observation.

### Railways and Terminals

From all I saw of the railway system, I would draw the conclusion that, to an eminent degree, it is properly designed, well maintained, and economically operated. The character of the station buildings is adjusted to the importance of the locality, as is indicated in Figs. 21, 22, and 23. The terminal yards are well laid out and are ample in capacity, as can been seen in Fig. 14.

### Bridges

Of the 2,232 spans on the entire system, only 569 are of modern, Japanese design, the remainder being old Russian bridges. The Japanese structures were computed for Class E 50 loading, while the Russian structures vary in capacity from Class E 45 to Class E 22. It is intended ultimately either to strengthen or to replace all of the 1,663 Russian spans, so as to have all bridges on the line made capable of carrying Class E 50 loading. A good comparison can be drawn between the two types of structures by an examination of Fig. 12, which shows a bridge of each type in juxtaposition. It was very gratifying to me to learn that all the new bridges are being designed in strict accordance with the principles, directions, and specifications given in my various technical books and papers.

### Highways

To what extent the highway system of South Manchuria has been developed, unfortunately, I neglected to enquire, nor have I any statistics on the subject; but I traveled over an excellent highway between Dairen and Port Arthur, and beyond (Illustrated in Fig. 26), the covering thereof being tarred and well-rolled macadam. Many of the streets of Dairen are paved in the same way; but I saw there several other types of pavement—all in good condition.

### Tunnels

The railway tunnels are well built; and I noted two excellent highway tunnels between Dairen and Port Arthur.

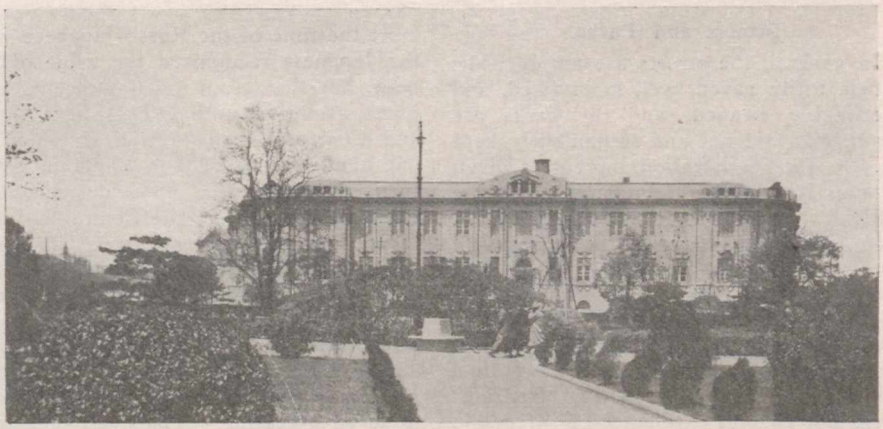


*Fig. 8 is the controlling office at Dairen for the postal, telegraph, and telephone systems*

*Fig. 9 is the produce exchange at Dairen for Manchurian grains and their products*

*Fig. 10 shows the Central Circle at Dairen, with Yamato Hotel and the City Hall at the left*

### Streets and Parks

In general, the streets are amply wide, satisfactorily paved, well maintained, and thoroughly cleaned; and the parks are beautifully laid out and scrupulously kept up. A good illustration thereof is given in Fig. 10. In my opinion, it would be difficult to find anywhere anything of more artistic appearance than this little civic centre.

### Municipal Buildings and Hotels

A study of Figs. 2, 3, 4, 6, 7, 8, and 9 must convince even the most skeptical critic concerning the beauty, elaborateness, and general excellence of the public buildings of Dairen; and, from personal examination, I can vouch for their satisfactoriness in every particular. The Yamato Hotels at both Mukden and Dairen, run by the company at a decided loss for the accomodation of both foreigners and homefolks, are models of excellence in respect to rooms, service, and food; and the pretty little Japanese waitresses, dressed in their beautiful native costume, with their dainty manners and smiling faces, are a great attraction to the guests in the dining rooms, and are truly an asset to the company.

### Warehouses and Residences

There are many large warehouses, mostly of reinforced concrete; and there are more of them under construction. They appear to be well and solidly built and capable of withstanding effectively earthquake shocks of great intensity. Fig. 5 shows a large number of dwelling houses of this type for the accommodation of the company's workmen. That organization certainly attends carefully to the comfort of its employees, providing, as it does, separate accommodations for families and bachelors, as well as amusements.

### Plants, Mills, and Factories

Scattered throughout the cities and towns of the zone, especially in their suburbs, are numerous plants for the manufacture of cement, lime, brick, and ceramics; mills for the production of lumber, oil, liquors, and flour; and factories for sugar, tobacco, and fabrics of silk, cotton, and hemp.

At the time of the Russo-Japanese war, the Japanese recognized the value of the bean, but that grain did not receive adequate attention until 1910, when Mitsui and Company made a trial shipment of one hundred tons of it to England. Since then, thanks to the numerous scientific experiments made in the Central Laboratory at Darien, many new uses have been found for it, until today the articles manufactured from beans, bean oil, and bean cake include the following; soy and various sauces, soups, breakfast foods, condensed milk, casein, cheese, salad material, crackers, macaroni, flour, confectionery, glycerine, explosives, enamels, varnishes, butter and lard substitutes, edible oils, water-proofing material, linoleum, paints, soap, celluloid, rubber substitutes, printing inks, lighting and lubricating oils, and other articles.

Truly the bean industry has become an important business for Southern Manchuria. In Fig. 19 the loading of bean cakes on board ship is illustrated; and Fig. 30 shows how beans are carried by the train load.

Manchuria at present produces only raw materials or semi-manufactured products that are to be completely manufactured by more advanced countries; nevertheless it possesses certain industrial advantages that are going to be utilized ere many years. For instance, it has abundant natural resources, both agricultural and mineral; a great deal of live stock and many staple products; fuel in the form of coal and oil from shale; and excellent coolie labor. Again, with its increasing population, and with China and Siberia on the south and north, it has good markets on all sides—to say nothing of the possibilities of sales in Japan proper and Korea.

### Iron Works and Other Works

There are large deposits of iron ore in Manchuria; and the company, a dozen years ago, prepared an elaborate layout of plant for its utilization; but, due to adverse market conditions, the scheme has not fully materialized. I have heard rumors to the effect that the economics of the problem had not been properly

*Fig.* 11 *illustrates a street in the Japanese portion of the city of Mukden*

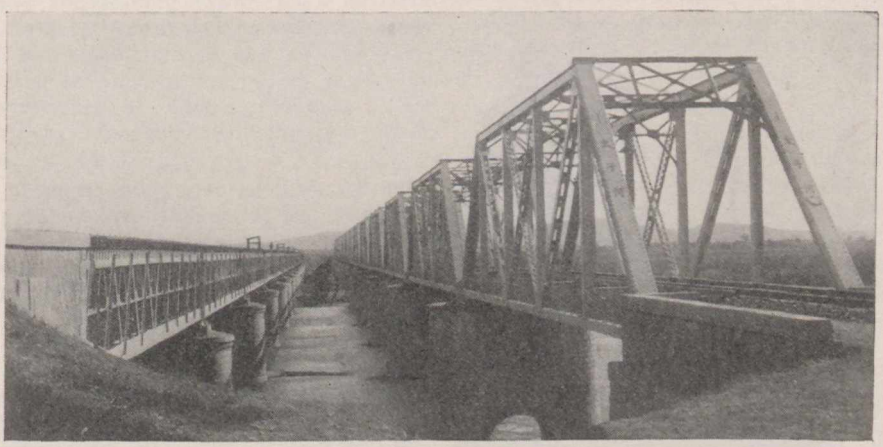


*Fig.* 12 *shows two parallel bridges over the Toh Shi Ho on the S. Manchuria Ry. To the left, an old Russian structure; right, a modern Japanese bridge built on American principles*

*Fig.* 13 *represents the railway bridge over the Yalu River between Manchuria and Korea—evidently a pin-connected structure and, therefore, not quite up to the latest American practice*

*Fig. 14 is a photograph of the terminal yard on the wharf at Dairen*

*Fig. 15 shows a full-sized testing plant for extracting oil from the shale that covers the coal at Fushun Colliery*

studied; and, in corroboration thereof, I note that the iron works at Ashan for nine years operated at a loss that averaged over three million yen annually. Last year, however, the deficit was only 160,000 yen, showing that the operation has been materially improved. Undoubtedly, in the near future the annual deficit will be changed to a profit.

For a long time the manufacture of salt has been one of the leading industries of South Manchuria. Under the Japanese règime it has made a remarkable development, the output having been augmented one thousand per cent in two decades. Most of the product is exported to Korea and the Japanese islands.

There are two establishments for the

manufacture of glass in South Manchuria, where the requisite silicious stone and limestone are abundant. These have not been operating many years, but they give promise of worth-while accomplishment.

There are various works for the manufacture of timber and lumber for both home consumption and export, the average production per annum being about 500,000 M. ft. B.M., of which forty per cent is exported. On the other hand, there is an annual importation of about 70,000 M. ft. B.M. of timber.

### Waterworks and Sewerage

The company has paid special attention to the building of waterworks for its cities and leading towns, while artesian wells have been driven to meet the needs of the inhabitants of the smaller communities. Modern waterworks have been constructed at Dairen, Mukden, Port Arthur, Liaoyang, Antung, and other leading towns.

An up-to-date system of sewerage, costing some three millions of yen, has been established at Dairen; and smaller ones have been constructed along the zone at all important cities and towns.

### Power Plants

The South Manchuria Electric Company, an off-shoot of the South Manchuria Railway Company, owns and operates power and light plants at Dairen, Mukden, Chanchung, and Antung, the total output for the year 1928 being well over 100,000,000 kw.-hr. The company declared an eight-per cent stock dividend for that year upon a paid-up capital of twenty-two million yen. All the Manchuria power plants, as far as I can learn, are operated solely by the combustion of coal.

### Harbors and Wharves

The company has built harbors and wharves at Dairen, Yingkon, Antung, Port Arthur, and Shanghai, costing, all told, some sixty million yen, of which fifty-three millions were spent at Dairen. Figs. 16, 17, 18, and 19 afford a good idea of what an excellent piece of construction is the harbor of that city with its various wharves and the breakwater. It is, throughout, an excellent piece of engineering work, and stands as a lasting monument to Japanese technical ability and constructive skill.

### Steamship Lines

The Dairen Steamship Company, another off-shoot of the South Manchuria Railway Company, has an authorized capital stock of ten million yen, about one half of which is paid up. It maintains five lines of navigation, viz., the Dairen - Tsingtao - Shanghai line, the Dairen-Tientsin-Antung line, the Dairen-Hongkong line, the Tsingtao-Shanghai line, and the Dairen - Lungkou (near Chefoo) line. It owns 24 steamers with an aggregate tonnage of some 57,000 tons and charters eight others of some 23,000 tons—a total of over 80,000 tons. Some of these ships are shown in Figs. 17, 18, and 19.

### Summer Resorts

The company has established fine summer resorts at Star Beach in the town of Hoshigaura, at several points along the coast between Dairen and Port Arthur where the beach is sandy, and at a number of hot springs, where the temperature of the issuing water is 98 degrees F. It is claimed that the water from these springs is specially good for rheumatism and nervous troubles.

### Institutions of Learning

Throughout the entire peninsula, the company has provided excellent schools of all grades, colleges, universities, technical institutes, medical institutions, hospitals, and museums for the education of both Japanese and Chinese, spending money thereon with praiseworthy liberality. The Japanese nation certainly believes in the efficacy of sound and thorough education. It is a fact, not generally recognized, that the percentage of illiteracy in Japan is less than that of any other country in the world—amounting, it is said, to less than one per cent.

The educational system of Manchuria, though fundamentally similar to that of Japan, was modified so as to meet the peculiar conditions that exist in the former country. Grammar schools and high schools are provided separately for Chinese, Koreans, and Japanese, while all

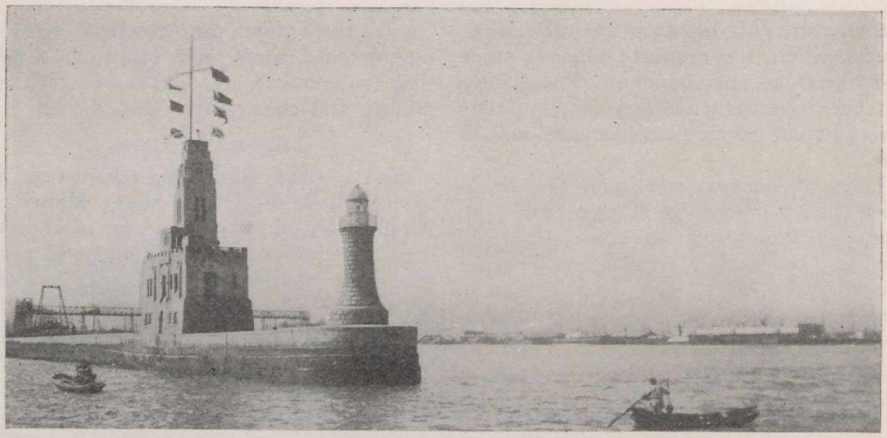


*Fig. 16 is the end of the breakwater at the entrance to Dairen harbor*

*Fig. 17 shows the principal wharf at Dairen, with the passenger entrance in the foreground*

*Fig. 18 is a general view of the wharves in Dairen harbor*

*Fig. 19 represents the loading of bean cakes onto one of the company's ships*

three races are taught together in the higher institutions of learning.

The company spends on educational work about three-quarters of a million yen per annum, in addition to the cost of the necessary buildings, and as much more for the operation of its hospitals, the number of employees of all grades in the latter being about fifteen hundred.

**Museums, Laboratories, and Libraries**

In the matter of providing museums, laboratories, and libraries, the company has been exceedingly generous. In Dairen there are two large museums. I spent all of two hours in one of them, examining the magnificent exhibits of agricultural and mineral products, which are phenomenally complete and beautifully displayed; but I succeeded in that time in covering only one of the floors.

There are several experimental laboratories in the zone, the principal one being the Central Laboratory at Dairen, shown in Fig. 6. I visited it, and found it most interesting and instructive. Its activity has been directed mainly toward experimental and research work in regard to the industrialization of products peculiar to Manchuria, such as beans, kaoliang, salt, coal, and other minerals. Its investigations have been extensive and their results exceedingly valuable. It has secured a dozen patent rights on important manufacturing processes newly discovered; and many applications for other patents are pending.

During the last two decades, the company's research bureau has published some 350 volumes — books, pamphlets, booklets, and periodicals.

There is no dearth of excellent public libraries in the cities and towns of the company's zone.

**Mines**

The principal ores that are mined in South Manchuria are coal, oil-shale, and iron. Coal is mined by the company at Fushun and Yentai, the total investment in the industry exceeding one hundred millions of yen at the beginning of 1928. During the preceding years some seven and a half million tons of it were mined, worth eighty-three million yen and costing seventy-three millions to mine and deliver, leaving a profit of ten millions.

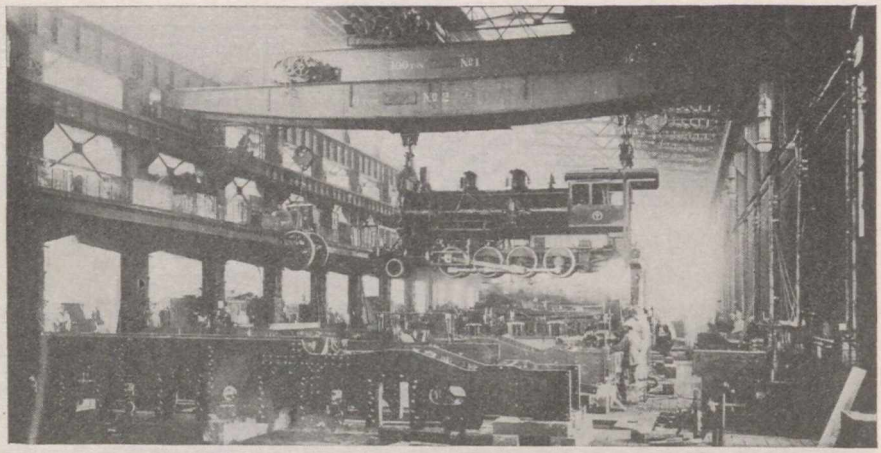


*Fig. 20 shows the interior of the company's railroad shop at Dairen*

*Fig. 21 is the railway station at Mukden*

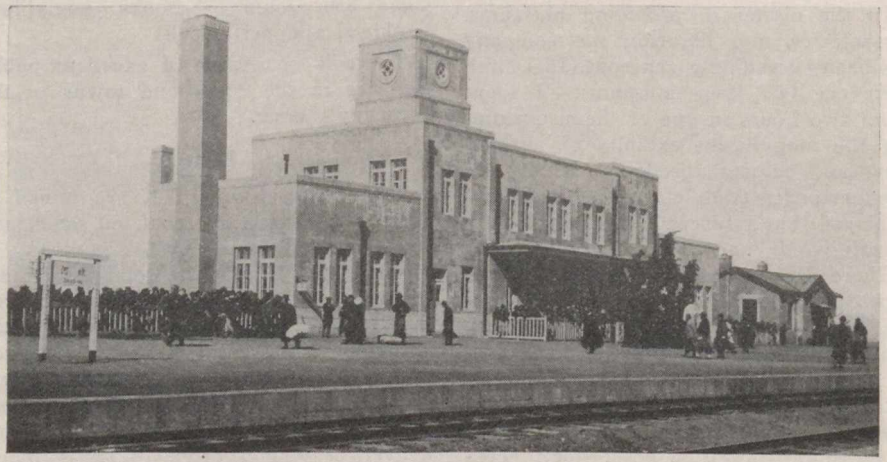


*Fig. 22 is the railway station at Joho*

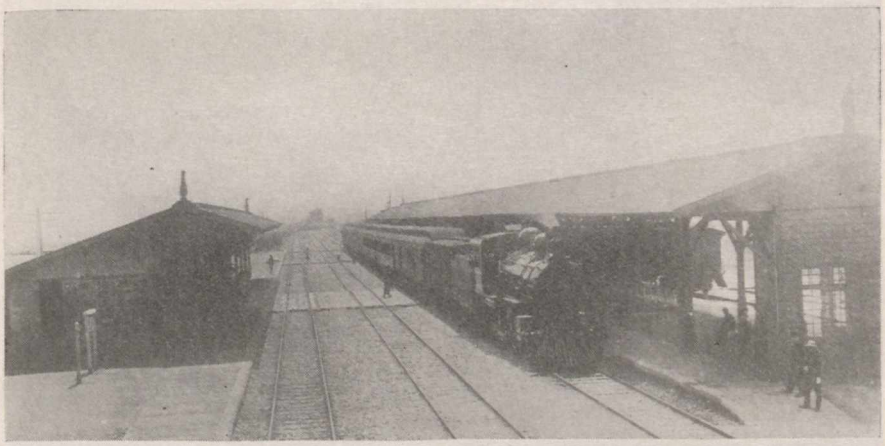


*Fig. 23 represents a small standard railway station*

When the company took over these mines in 1907, their combined daily output was three hundred tons, and now it is over twenty-six thousand tons. The Fushun mine is the largest open cut in the world. A good view of it is given in Fig. 25. The vein, which is composed of excellent splint coal, is from 80 to 420 feet thick, averaging 130 feet, and covers an area of 23 square miles, the estimated total deposit being over a billion tons. There is no similar coal reserve to equal it anywhere in the world. Nearly one-half of the output is consumed in Manchuria, the remainder going to Korea, China, Japan, the South Seas, and steamers in Manchurian ports.

At the Fushun mine, there are vast deposits of oil-shale directly overlying the coal bed and covering some ten square miles in area, with a maximum thickness of 450 feet. It is estimated to contain over five billion tons of ore, which bears, on the average, six per cent of oil. The company has arranged to set up a shale-oil plant at Fushun with an annual capacity of 70,000 tons of crude oil and by-products, at an expenditure of 8,500,000 yen. In addition, there will be produced per annum some 18,000 tons of ammonium sulphate and 7,000 tons of paraffin.

Iron ore was found in great abundance at Anshan in 1909; and some large-scale preparations for its mining by a Japanese company were then made; but they were not carried out, because of a sudden drop in the price of pig-iron from 440 yen to 50 yen per ton, due to the world-wide depression after the Great War. Owing to economic studies and the invention of special apparatus by certain Japanese scientists, the annual production has been gradually increased in nine years from 30,000 tons to 200,000 tons; and lately it has been contemplated to build another furnace that would add 100,000 tons per year to the output.

### Afforestation

Previous to the Japanese occupation, the Manchurian forests had been ruthlessly sacrificed by both the Chinese and the Russians; but the newcomers immediately began afforestation. They planted over eighty million trees on 143,000 acres in the leased territory; and the railroad company distributed 32,500,000 saplings for afforestation in its zone. From the fine results of tree-planting in Korea by the Japanese, that I saw some eight years ago, I anticipate great success for their Manchurian afforestation venture.

### Experimental Farms

The Manchurian methods of farming have changed but little in many centuries, as the native farmers do not select better-than-average seeds, breed up their live stock, improve the ancient methods of manuring, or reclaim virgin lands; but when the Japanese began their work, the

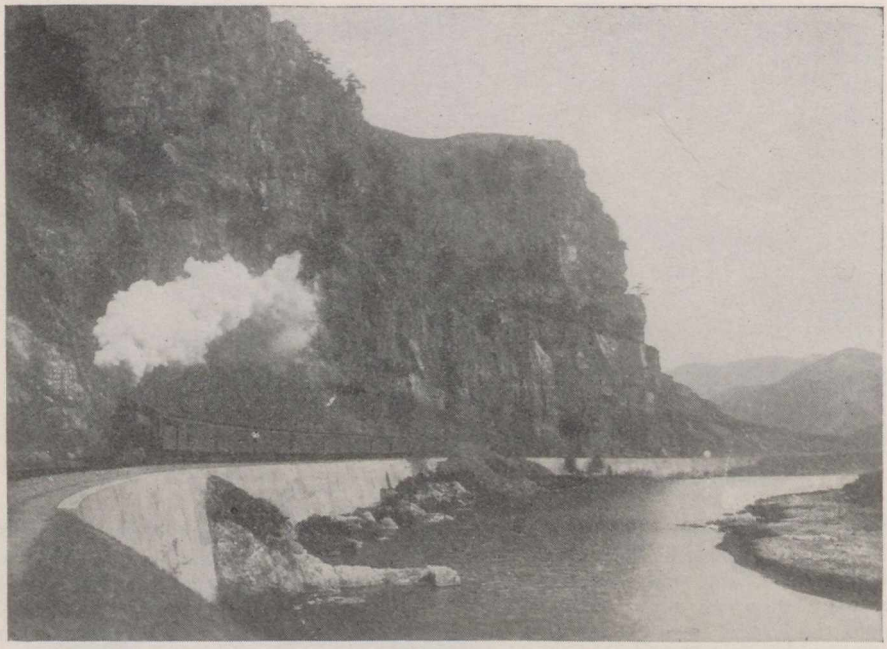


*Fig. 24 is a view of the railway track between Mukden and Antung*

new rulers took energetic steps to improve the agriculture of the entire zone and leased territory. This action has stimulated somewhat the Chinese to follow suit; and the Russians also have established agricultural experimental farms in Harbin, Anda, and Jeh-hu, along the line of the Chinese Eastern Railway.

The South Manchurian Railway Company has established and is operating a number of experimental farms in its holdings, the principal ones being those located at Dairen, Kungchuling, Paiyintala, Hsiungyaocheng, and Fenghuagchen. In these places great betterments have been effected in the quality of seeds for the farmers; many new and improved fruits have been introduced and wide-spread (including peaches, apples, pears, grapes, and cherries); rice culture has been inaugurated; four superior types of beans have been produced and distributed; and the breeds of sheep, hogs, ponies, and cattle have been wonderfully improved.

By importing Merino rams of a superior breed and crossing them with native Mongolian ewes, a fine fixed type of sheep has been secured, yielding wool of a better quality and much larger quantity. Similarly, by importing a superior breed of Berkshire boars and crossing them with the native sows, a fine breed of hogs has been established.

By improving the quality of the mulberry trees, the output of silk has been materially augmented; and experiments on the introduction of American tobacco have proved successful.

The improvement in wheat production has been disappointingly small, but the experiments thereon are being continued. The prospects for bettering the wheat are greater in North Manchuria than in the south. This is encouraging on account of the vast areas of untilled land that are to be found in North Manchuria.

The introduction of seed rice from Japan has increased the output per unit of area forty per cent, besides bettering the quality of the grain.

Seed distribution was begun in 1924 by the various stations and farms of the company, with the following results up to the beginning of 1928:

| | |
|---|---|
| Improved soya bean seed... | 17,000 bushels |
| Improved paddy rice seed.. | 6,850 bushels |
| Improved sheep..... | 608 head |

*Fig. 25 shows one of the open-cut coal-mines in Fushun*

| | |
|---|---|
| Improved hogs | 261 head |
| Improved fruit-tree seedlings | 200,000 saplings |
| Improved mulberry-tree seedlings | 1,386,000 saplings |

In addition to the above, over 32,000,000 saplings were distributed, free of charge, for afforestation purposes.

To some of these experimental farms, agricultural schools for Chinese students have been attached.

In short, the results of Japanese researches on agriculture in South Manchuria have been phenomenal, and the money value thereof to the country is incalculable. Concerning the high quality of some of the South Manchuria fruits I can speak from experience, for the apples there were as good as any that I have ever eaten in America, and the persimmons were very large and well flavored.

*Fig. 26 illustrates a portion of the Government highway between Dairen and Port Arthur*

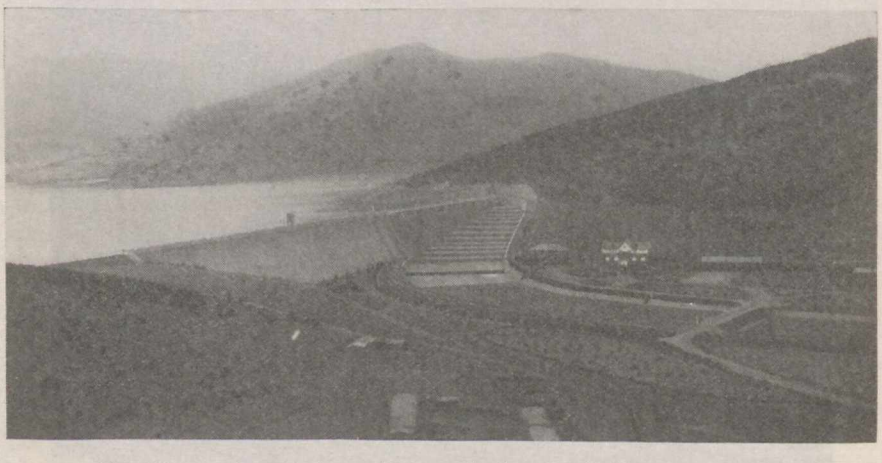


*Fig. 27 is a view of the main reservoir dam for Dairen water-works*

*Fig. 28 illustrates jujuitsu in the gymnasium for employees of the South Manchuria Railway at Dairen*

*Fig. 29 depicts Japanese fencing in that gymnasium*

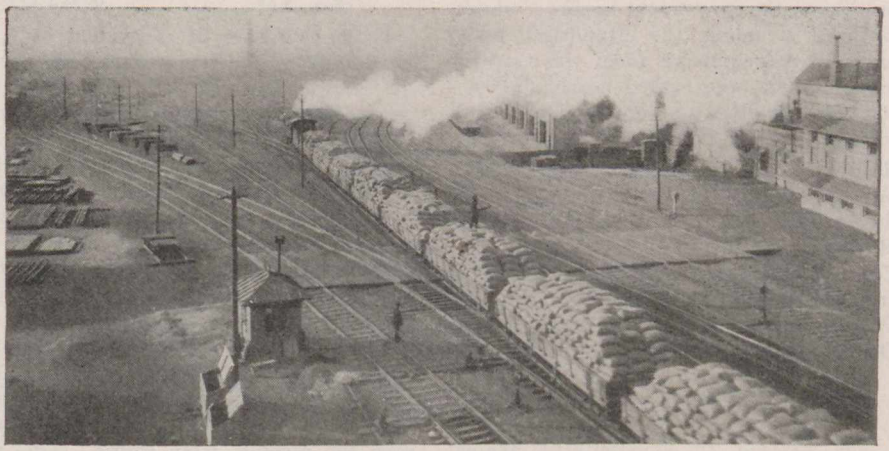


*Fig. 30 is a photograph of a train-load of beans*

### Financing

To my mind, one of the most interesting features of the company's activities is its method of financing. It has proved to be so successful that I feel warranted in describing it at length and in detail as a closure to this paper.

The original amount of authorized capital stock of the company was 200,000,000 yen, one-half of which was held by the Japanese Government as compensation for turning over all its Manchurian property in railroads, coal mines, and their appurtenances to the company. The other half was offered for subscription to the Chinese Government and the Chinese and Japanese publics; but this offer was accepted only by the Japanese, who greatly over-subscribed for the issue—however, only 80,000,000 yen were paid up. In March, 1920, the total capitalization was increased to 440,000,000 yen, the Government taking one-half of the additional issue, or 120,000,000 yen's worth. Much of the company's share of the stock has been subscribed and paid for, but on March 31, 1928, there were still in the treasury 138,000,000 yen's worth of shares.

The financial policy of the company in the first stage was to raise funds for its constructions by the issuing of deben-

tures, rather than by floating new capital shares. The London market was then favorable, hence there were made four issues of debentures, totaling £14,000,000 sterling. Of these £12,000,000 were taken over by the Japanese Government in payment for its holding of new shares. The remaining £2,000,000 were redeemed in 1911. Since that time and up to March 31, 1928, twenty-two issues of debentures were made, all in Japan, excepting only one of £4,000,000, issued on the London market in 1923. Nine out of these twenty-two issues had been redeemed by the end of March, 1928, leaving fourteen issues outstanding, aggregating some 278,000,000 yen.

The fund thus raised has been invested in various enterprises. During twenty-one years, the investment in direct undertakings, including the properties taken over by the company from the Government in 1906, aggregated nearly 650,000,000 yen, divided by percentages as follows:

| | |
|---|---|
| Railways | 37.1 |
| Workshops | 1.3 |
| Steamships | 0.7 |
| Harbors | 9.2 |
| Coal Mines | 16.0 |
| Iron Works | 3.2 |
| Public Works | 25.5 |
| Other Projects | 7.0 |
| Total | 100.0 |

The average of expenditures against receipts for two decades is 82 per cent, the annual net profit in that time having increased from two million yen to thirty-six million yen. The railways, harbors, and coal mines bring in large profits; but the other investments of the company are operated at a loss, as shown by the following table, which gives the total profits and losses up to the end of March, 1928:

| Properties | Profit and Loss |
|---|---|
| Railways | 68,008,345 yen |
| Harbors | 970,160 yen |
| Coal Mines | 9,748,300 yen |
| Iron Works | — 157,542 yen |
| Hotels | — 264,084 yen |
| Local Public Works | —13,006,211 yen |
| Interest on Deposits and Loans | —15,121,767 yen |
| Sundries | — 356,400 yen |
| Overhead Charges | —11,482,936 yen |
| Depreciation Fund for Debentures | —2,063,543 yen |
| Total Net | 36,274,322 yen |

From this table it is evident that the great bulk of the net profits comes from the railway system, and that the latter carries the losses from a number of other ventures, all public expenditures, and the interest on borrowed money. In many cases the so-called "losses" are intentional, for the company incurs them as a matter of policy—for instance, in the operation of its excellent hotels that, from an economic standpoint, are too elaborate for the limited number of guests.

During the twenty-one years of its existence under the Japanese management, the railway system shows a ratio of only forty per cent for operation compared with the receipts from traffic. This record is a high tribute to both the ability and the honesty of the company's management, and stands as a brilliant example of economic railroading for the entire world.

CONSTRUCTION OPERATION & PLANT
COMMERCIAL PRESENTATION OF
MATERIALS AND EQUIPMENT
CONSULTATION DESIGN INVESTIGATIONS

FRANK W. SKINNER
*Consulting Engineer*
Member American Society Civil Engineers
Many Years Editor Engineering Record and Contracting
20 VESEY STREET, NEW YORK CITY

APPRECIATIVE PUBLICITY
POPULAR AND TECHNICAL ARTICLES
LECTURES, PAMPHLETS, BULLETINS
ENGINEERING BRIEFS, REPORTS

*Telephone* Whitehall 1426

Feb.17th,1930

Sir Arthur Curry,President.
McGill University.
Montreal.
Canada.

Dear Sir:

The Clausen Gold Medal for the most distinguished service for the welfare of engineers will be annually awarded by a committee of the American Association of Engineers,and this year's committee invites nominations to its chairman,G.M.Butler,for the recipient of the medal.

My forty years of active engineering experience,long editorial services and consulting practice, have afforded me the privilege of an unusually wide acquaintance,and intimate and confidential relations with very many eminent engineers,and men closely affiliated with engineering interests. Many engineers and technical educators have done well,according to their opportunities,for the welfare and betterment of their fellow associates,employees,students,and for the profession generally,but I know of no one,or even two or three together, who have so consistently,continuously,widely and effectively labored to this end as has Dr.J.A.L.Waddell,150 Broadway,New York.

I have known Dr.Waddell intimately since long before he became so distinguished as a bridge engineer,and have been more than familiar with his numerous and important personal and professional activities, that have well earned for him his conspicuous success and recognition here and abroad. While he has devoted abundant labor and ability to his professional efforts,they have never taken precedence of his unselfish devotion to his profession and its members, and it is his earnest conviction that his own engineering skill and achievements,his methods,records, analyses,computations and tabulations,researches and final conclusions, are none of them his private property to be concealed for the exclusive benefit of himself,or even his clients,but were rather to be held in trust for the good of our noble profession and its members,individually and collectively,and that their most effective presentation and distribution is an honored duty,helping to alleviate duplication of effort, to preserve valuable and costly findings, and to endow his successors with reliable information that would relieve them of unnecessary repetititon,and conserve for them knowledge and experience that launches them with better preparation, and facilities for great success than their predecessors.

Always vigorously,consistently and generously practicing this creed,he has for a half a century been a militant apostle of better,broader,and more

practical engineering education, an inspiration to young engineers to cultivate higher professional ethics, selective, progressive personal development, public enterprise, social and political activities, economic and financial considerations, and applications; adequate recognition, rewards and responsibilities for engineers, and the respect and appreciation of other interests and professions for the engineer. He has devoted a vast amount of time to very many lectures to and for engineering students in most of the best colleges and universities in this country, and several abroad. He has employed many hundreds of engineer assistants, with generous efforts to improve and encourage the younger men, and with advice and many times, with substantial assistance.

He has never omitted an occasion, and has created many, to promote the dignity and recognition of the engineering profession, and to increase the remuneration and opportunities of its members.

He has spent many thousands of dollars in the preparation and free distribution of the most important professional investigations, classified data, tabulations, and conclusions of his lifetime. He has published, without thought of profit, and always at a heavy financial loss, several most important authoritative technical books and hand books of great practical value.

He has contributed greatly to the development of structural engineering and long span bridge design by his costly pioneer researches and papers on "Elevated Railroads", and on "Nickel Steel", and during the great war he afforded employment to an increased office staff, and spent a large sum on the calculations, tabulations, and researches for his "Bridge Engineering", a compendium of great value to designers and constructors, which, like "Economics of Bridges", and his other publications, entailed heavy financial loss, cheerfully foreseen and accepted for the good of his fellows; and he is today happily working early and late, with just the same generous, efficient altruism.

I hope that you will feel impelled to express appreciation of Dr. Waddell's services to engineers and engineering by nominating him to G.M. Butler, Dean of College of Mines and Engineering, University of Arizona, Tucson, Ariz., as a worthy recipient of the first award of the Clausen Medal.

Very truly yours

Frank W. Skinner

FWS:MBW.

In an address delivered Jan.5th,1930,to the engineering students of Chekiang University,China,Col.Arthur N.Shaw,Consulting Engineer to the National Construction Commission and Chekiang Provincial Government,after enumerating some of Dr.Waddell's numerous services for the good of the young Chinese engineers,said:

"There is probably no living engineer who has given as freely of his time and energy for the advancement of the profession as has Dr.Waddell, who,at the age of 75 years,left a lucrative practice in New York City to spend a year in China. While here,in addition to the special work for which he was engaged,he assisted andadvised in regard to the re-arrangement of the curriculum of at least two techingal schools,gave numerous lectures,and contributed in many other ways to the advancement of the provession",

February 21st, 1930.

Dean G. M. Butler,
Dean of the College of Mines and Engineering,
Tucson, Arizona.

Dear Sir,

I am informed that the Clausen Gold Medal for the most distinguished service to the welfare of engineers will be awarded this year for the first time and it has been suggested to me that I should forward a nomination.

I should like to propose Dr. J.A.L. Waddell as a most worthy recipient of the Clausen Medal and I base my recommendation on the very large contribution which Dr. Waddell has made to the cause of engineering education. He has published for the benefit of other engineers all the important results of his own work, without any thought of retaining his hard-won knowledge for himself. He has devoted an immense amount of his valuable time to addressing, encouraging and advising students of the profession. His contributions to history and economics are worthy to rank with those he has made to technique and to science. Indeed, his work has covered every part of the field to which he has devoted his life.

As you are probably aware, he is one of the oldest graduates of this institution and we regard him with much pride as a great educator as well as a great engineer.

It is for these reasons that I put forward Dr. Waddell's name and earnestly press for its consideration.

Yours faithfully,

Principal.

University of Arizona
TUCSON
COLLEGE OF MINES AND ENGINEERING
AND
ARIZONA BUREAU OF MINES

OFFICE OF THE DEAN AND DIRECTOR

Feb. 25, 1930

Sir Arthur W. Currie,
McGill University,
Montreal, Canada.

Dear Sir:

In reply to your letter dated Feb. 21, I wish to say that Dr. J. A. L. Waddell has already been nominated to receive the Clausen Gold Medal, and I have received many letters in support of that nomination. I am sure that he will be very carefully considered by the committee when the award is made.

There is absolutely no doubt of Dr. Waddell's contributions to engineering education and of the great service that he has rendered to the profession in many other ways. The only question that might arise relates to his contributions to the social and economic welfare of engineers, for which services the medal must be awarded. The committee would undoubtedly welcome your ideas on this point.

Thanking you for your interest, I am

Very sincerely,

G. M. Butler

G.M.Butler-L

Dean and Director.

July 19th, 1928.

Frank W. Skinner, Esq.,
Consulting Engineer,
20 Vesey Street,
New York City.

Dear Sir:-

I beg to acknowledge receipt of your letter of July 11th addressed to Sir Arthur Currie asking him to review the booksof memoirs and addresses of Dr. J.A.L.Waddell which you are compiling.

Sir Arthur is at present on vacation in Europe and does not expect to return to the University until the end of September. It is necessary for him to have a complete rest and on the advice of his physicians no mail is being forwarded to him and he is undertaking no work of any kind. In any event, I do not think he would undertake this work personally as he is unfamiliar with the subject matter. He would doubtless refer it to Dr. H. M. Mackay, Dean of the Faculty of Applied Science of McGill. If you wish me to do this, please let me know and I shall pass on your letter and enclosure.

Yours faithfully,

Wilfrid Bovey.

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APPRECIATIVE PUBLICITY
POPULAR AND TECHNICAL ARTICLES
LECTURES, PAMPHLETS, BULLETINS
ENGINEERING BRIEFS, REPORTS

July 11, 1928.

Sir Arthur Currie,
President, McGill University,
Montreal, Canada.

Dear Sir:

For the past two or three years I have been engaged on the compilation and editing of some seventy or eighty memoirs and addresses delivered by Dr. J. A. L. Waddell, Consulting Engineer, in the last twenty years, which years have been of maximum importance. These papers are divided into the following Groups:

| Group Number | Title of Group | Number of Papers in Group |
|---|---|---|
| 1. | The Engineering Profession | 9 |
| 2. | Ethics of Engineering | 3 |
| 3. | Technical Education | 8 |
| 4. | Engineering Literature | 2 |
| 5. | Alloy Steels for Bridge Construction | 5 |
| 6. | Economics | 8 + 7 |
| 7. | Bridge Construction in General | 11 |
| 8. | Contracts | 2 |
| 9. | Railroad Subjects | 3 |
| 10. | Matters Chinese | 14 |
| 11. | Miscellaneous Topics | 5 |
| | | 70 + 7 |

These papers I have put in book form under the title "Memoirs and Addresses of Two Decades, by Dr. J. A. L. Waddell, Consulting Engineer, Edited by Frank W. Skinner, Consulting Engineer." The MS. of the work is now in the printer's hands, and the book is promised in August.

Enclosed you will find a copy of the "Table of Contents."

The preparation and issuing of this volume have been "a labor of love" on the part of both the Author and the Editor, their joint desire being to make available the results of the most important portion of the Author's life's work, which otherwise would have been scattered all over the world and much of them lost.

There has been no thought of its being a paying venture -- far from that, as the outcome will certainly be a large pecuniary loss to the Author, who is financing it.

Having completed a full half century of notable engineering activity, it is his desire that his best efforts in behalf of the science of bridge design and other branches of engineering, of technical education, engineering economics, and the advancement of the engineering profession, and of the regeneration and development of China on scientific and economic lines should not be lost to the world, but should be made readily available for use. Papers that are a portion of the Author's standard technical books have not been reproduced, but have received editorial comment.

The great value of the Author's writings and lectures is generally recognized in many countries; hence there can be no doubt about the ultimate utility of the forthcoming book, provided that it be brought prominently to the attention of engineers and technical students.

Such being the case, I write to ask whether you would be willing to review the book at length, over your signature, in one or more papers or periodicals (technical or otherwise), including the official organs of engineering schools.

If so, I shall send you a copy as soon as it comes from the press; and request that you send me two or three copies of each publication that produces your review or reviews. If you are put to any expense in so doing, I shall gladly remit the amount thereof upon notification.

Hoping for an early and favorable reply,

Yours faithfully,

Consulting Engineer and
Editor of "Memoirs and
Addresses of Two Decades."

# MEMOIRS AND ADDRESSES OF TWO DECADES

*By* DR. J. A. L. WADDELL, *Consulting Engineer*
*Edited by* FRANK W. SKINNER, *Consulting Engineer*

CONTENTS

August
Thirteenth
1921.

Virgil H. Hewes, Esq.,
35 Nassau Street,
New York, N.Y.

Dear Sir:-

I beg to acknowledge receipt of your letter of July 11th addressed to Sir Arthur Currie, and also copy of Dr. Waddell's Book "Economics of Bridgework", which arrived to-day.

Sir Arthur is at present absent in England and on his return I shall take pleasure in bringing the book to his attention.

Yours faithfully,

Principal's Secretary.

ASSOCIATE ENGINEERS
VIRGIL H. HEWES, C.E.
SHORTRIDGE HARDESTY, C.E.

FOREIGN AGENCIES
MELBOURNE, AUSTRALIA
CALCUTTA, INDIA
SHANGHAI, CHINA
BUENOS AIRES, ARGENTINE
SANTIAGO, CHILE

J. A. L. WADDELL, D.E., LL.D.
CONSULTING ENGINEER
CABLE ADDRESS: WADDELLJE
CODES: WESTERN UNION AND A. B. C.
35 NASSAU STREET
NEW YORK

FOREIGN AGENCIES
LIMA, PERU
BOGOTA, COLOMBIA
MEXICO CITY, MEXICO
BARCELONA, SPAIN
PARIS, FRANCE

July 11, 1921.

Sir Arthur Currie, Pres.,
McGill University,
Montreal, Canada.

Dear Sir:

Before Dr. Waddell started for China, he requested me to send you as soon as issued a complimentary copy of his "Economics of Bridgework."

I take pleasure in doing so today. Kindly acknowledge receipt of book upon card enclosed with the book.

Yours very truly,

Virgil H. Hewes.

73

ASSOCIATE ENGINEERS
VIRGIL H. HEWES, C.E.
SHORTRIDGE HARDESTY, C.E.

FOREIGN AGENCIES
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FOREIGN AGENCIES
LIMA, PERU
BOGOTA, COLOMBIA
MEXICO CITY, MEXICO
BARCELONA, SPAIN

February 8, 1921.

General Sir Arthur Currie,
Principal, McGill University,
Montreal, Canada.

Dear Sir Arthur:-

Your letter of December 10th reached my office during a prolonged absence, hence delay in reply. I am sorry that you did not care to undertake the review of my "Economics of Bridgework", but I am pleased to learn that the campaign in the interest of McGill was such a pronounced success. Whenever you come to New York, I should be glad to have you call upon me.

Very sincerely yours,

J. A. L. Waddell.

JALW/mk

December
Tenth
1920.

J.A.L. Waddell, D.E.,LL.D.,
35 Nassau Street,
New York, N.Y.

Dear Mr. Waddell:-

Your letter of the 11th October arrived in Montreal while I was away on my tour across Canada in the interests of McGill. I should have acknowledged it as soon as I returned to the City, but one has been frightfully busy since.

I have come to the conclusion that I am not capable of reviewing your treatise on "Economics of Bridgework". There is no use in attempting anything of which you are not capable. I think my lack of ability would be recognized by the people generally, and, therefore, I think it is in your own interests to have this work undertaken by someone else.

You will be rejoiced, I know, at the news that the campaign in the interests of McGill was such a pronounced success. I hope that you will come to see me when you come to Montreal.

With all good wishes,

I am,

Yours faithfully,

Principal.

ASSOCIATE ENGINEERS
VIRGIL H. HEWES, C.E.
SHORTRIDGE HARDESTY, C.E.

FOREIGN AGENCIES
MELBOURNE, AUSTRALIA
CALCUTTA, INDIA
SHANGHAI, CHINA
BUENOS AIRES, ARGENTINE
SANTIAGO, CHILE

J. A. L. WADDELL, D.E., LL.D.
CONSULTING ENGINEER
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35 NASSAU STREET
NEW YORK

FOREIGN AGENCIES
LIMA, PERU
BOGOTA, COLOMBIA
MEXICO CITY, MEXICO
BARCELONA, SPAIN

October 11, 1920.

General Sir Arthur William Currie,
Principal of McGill University,
Montreal, Canada.

Dear Sir:

In accordance with our conversation on the 7th instant, after the close of the proceedings at the dinner of the New York Graduates Society of McGill University, I am writing to repeat the request which I then made you to the effect that you review over your signature in the Canadian papers my forthcoming treatise on "Economics of Bridgework".

From your inspiring speech of that evening I judge that, like myself, you are convinced of the extreme importance at the present time of studying and applying true economics in every line of endeavor. In no line is this as fundamentally important as in that of engineering — the basis of practically all the material progress of mankind.

My book aims to treat thoroughly every major economic problem that can arise in the specialty of bridgework and most of the minor ones also — and I do not believe that I am going to fall far short of my aim and ideal.

But, in preparing the treatise, I have had in mind a far-wider-reaching object than that of augmenting the science of bridge design; for I have reason to hope that this work will be the means of starting specialists in many other lines of technics to writing books on the economics of their specialties. If, eventually, the engineering profession should possess an exhaustive treatise on the economics of every

important specialty in each of the main branches of engineering, the status of the practice of that profession would be materially raised.

You may think that in entertaining this hope I am ultra-ambitious, and in your own mind you may accuse me of conceit; but if so, I trust that you will pardon me on the ground that the enthusiastic reception throughout the world received by my "Bridge Engineering" (of which the treatise now under consideration is to be the sequel) has given me cause to entertain the ambition previously expressed. Enclosed herewith are two publisher's folders giving the opinions of the profession and the press concerning what I had thought when I wrote it would be my magnum opus.

I think now, however, that "Economics of Bridgework" will prove to be of greater importance than its predecessor "Bridge Engineering". Enclosed is a "List of Chapters" of the new book, the MS. of which I hope to complete within the next thirty days, as there are now only two chapters unfinished.

One of these is an afterthought — not of mine, however, but of two former U. S. Army engineers, who requested that I permit the insertion of a chapter on "Economics of Military Bridge Engineering". Upon my immediate adoption of the suggestion, they stated that they would request Major General Beach, Engineer-in-Chief of the U. S. Army, to appoint a member of the Corps to prepare the MS.

Accordingly, General Beach detailed Lt.-Col. Bond; and he with the assistance of two of his brother officers is now at work on the task.

I feel sure that my old friend and former assistant engineer, Prof. H. M. Mackay of Mc Gill, would be willing to aid you in the technical features of the review. What I specially desire is your express-

ed opinion concerning the importance of the treatise from the point of view of world-economics.

I trust that you will pardon my presumption in asking this favor and that you will decide to grant my request.

As I told you the other evening, while not a former student of McGill, I am an alumnus thereof, having been given in February 1882, the ad eundem gradum degreee of Bachelor of Applied Science, having taken in June of the same year, by an examination extending over two days of eight hours each, the degree of Master of Engineering, and having received in April, 1904, in course, the final degree of Doctor of Science. Three other doctor degrees have since been conferred upon me by other universities; but none of them is dearer to me than the degrees which I received so long ago from the representative institution of learning of my native country.

You can undoubtedly find copies of "Bridge Engineering" and its little predecessor, "De Pontibus", in the Library of the University. By the way, the latter work was dedicated to McGill.

I truly enjoyed the magnificent address which you gave us last Thursday evening; and I hope that it was recorded by stenographer and will be printed later, for it contains many important thoughts in which others than those present should share.

Very respectfully yours,

J. A. L. Waddell.

JALW/IB

Enclosures.

# DOCKET STARTS:

WAINWRIGHT, LIONEL C.

January
Fourteenth
1921.

Lionel C. Wainwright, Esq.,
801 Board of Trade Building,
Pender Street,
Vancouver, B.C.

Dear Sir:-

I acknowledge receipt of your communication of recent date, and am glad to see by it that your organization is alert and active.

I have not seen the moving picture referred to, but on general principles I heartily endorse the stand you have taken.

Yours faithfully,

Principal.

# BRITISH EMPIRE LEAGUE OF CANADA

Room 801 - Board of Trade Bldg., Pender St.,

VANCOUVER, B. C.

AT A MEETING of the Executive of the British Empire League of Canada, held on the 28th. day of December, 1920, at Vancouver, B. C. the following resolution was adopted:-

WHEREAS it has been made to appear to this League that a certain Moving Picture called "Dinty" now being shown at the Allen Theatre is most objectionable to the British and Protestant people of this Country by reason of the Propaganda in the advertising of a religious denomination and the pushing of Irish-American Propaganda and exhibiting the Stars and Stripes to the exclusion of the Union Jack.

AND WHEREAS Moving Pictures of this particular denomination have been continuously presented at most of our Moving Picture Houses.

BE IF THEREFORE RESOLVED that this League hereby puts itself on record as being opposed to any religious denomination whatsoever using the Picture Screens as a means for Advertising and for Propaganda purposes.

AND this League further objects to the American or any other flag being continually shown on the Screens to the exclusion of our own flag the Union Jack, and this League greatly regrets that British and Canadian films are rarely exhibited, and that American and Irish-American Patriotic music is played to the exclusion of our own music.

" Lionel C. Wainright, "

Secretary British Empire League of Canada.

**DOCKET ENDS:**

WAINWRIGHT, LIONEL C.