THE HIGH SCHOOL PHYSICS LIBRARY.

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At the last meeting of the affiliated schools of the University of Chicago, a committee was chosen to select the books most suitable for the high school physics library. This committee consists of Mr. E. J. Rendtorff, of the Lake Forest Academy, Chairman; Mr. E. E. Burns of the Medill High School and Mr. W. E. Tower of the Englewood High School, Chicago.

The committee endeavored to select books intended exclusively for the use of the student and not primarily for the teacher. An attempt was made to get away from the textbook type of library, that does not appeal to students, and to substitute books of a more general and popular type, that pertain to the science of physics.

Practically every teacher complains that the students do not manifest any real interest in physics, that they will not use the school libraries and that the subject is unpopular. After having examined many school libraries, the reason for the second charge becomes evident. Few schools present even an apology for a physics library. When a collection of books is found, they generally resolve themselves into a series of antiquated, abstruse textbooks that former teachers or patrons have, with mistaken kindness, contributed to the institution after a thorough house cleaning in their own private libraries, and of a general assortment of elementary textbooks presented to the teacher for the purpose of introduction as a class text.

Occasionally, an appropriate book is found hidden amongst a bunch of trash, so as to escape attention. No wonder that the student does not use the library. Fortunately, he has an average sprinkling of common sense and an idea of the eternal fitness of things.

The neglect of the high school library is prevalent in practically every secondary school. Its development has seldom been undertaken with any seriousness. We have simply assumed that the students will not read and that the fault was entirely theirs.

When the work of the selection of appropriate books was assumed by the committee, it was found extremely difficult to obtain the necessary help from their fellow teachers. Some fifty personal letters were sent to various teachers, asking for the

names of appropriate books. Some few books were recommended by practically everybody, although they contained but little of merit. They belonged to the fashionable set. About one-half of the books recommended were utterly inappropriate for high school use.

The various publishers were also appealed to and in some cases they donated books that their experience proved to be popular.

In this way, and through the personal investigation of the committee, the names of some three hundred books were secured. After the antiquated books, and those out of press were eliminated, there remained some 240. An attempt was now made to purchase all the recommended books, for personal study, so that none would be placed on the final list through hearsay. Some few publishers also contributed their publications for the good of the cause. Some 160 books were collected, over one-half of which were thoroughly inappropriate and in many cases useless. After this experience, with what was assumed to be the better books, the committee began to hesitate about purchasing what remained.

A complete list was now made of all the recommended books and some one hundred copies sent to various teachers, with the request to mark them as follows: A, when of exceptional value; B, when good; F, when fair; and D, when poor in subject matter, general treatment, or beyond the ability of the high school student. A request was also made for the names of any books of exceptional merit not already on the list.

The result of this attempt was discouraging. Comparatively few lists were returned, the average teacher failed to contribute anything new, while the estimates of some well-known books varied from A+ to D.

After allowing for the expected difference of opinion, the varied environmental conditions and special hobbies, the conclusion seems to be that the entire subject is in such a chaotic, unorganized condition that an appropriate selection can be made only by a general appeal to the entire teaching profession.

The committee has therefore decided to publish its selected list as it now stands, with an urgent request to every teacher, student and layman to contribute additional books that from personal experience are known to be of exceptional value and interest to the high school student. These books are to be of such type as the average student will read, not under compulsion, but voluntarily and with pleasure, because of actual interest and in-

trinsic value. They should be books with the proper punch to them.

It is the intention of the committee to have at least one exceptional comprehensive textbook on general physics, one table of physical constants, a good general book on formulas and recipes and at least one good textbook on each of the various departments of physics—mechanics, heat, sound, electricity and magnetism, and light. The remaining books should mainly be of the popular type, free from the general textbook idea, but correlated to the subject of physics.

SCHOOL SCIENCE AND MATHEMATICS has kindly consented to publish, in its next edition, whatever good books are recommended, in addition to those of this article. For the benefit of our students and our schools, it is desirable that this contribution be large and well-selected. The committee can then secure these books, examine them carefully and finally present a list that will be of lasting benefit to our students, teachers and schools.

The need of an appropriate list of books is very acute. It is probably the most serious question to be solved by our science teachers. Practically every teachers' journal laments the lack of interest in science work and gives statistics illustrating that it is rapidly becoming unpopular and is being superseded by other studies. Is the reason for this not perhaps because we do not foster the required interest, but feed our students only with dry textbook work and fail to supply them with the appropriate and desirable reading matter?

Allow me to outline my personal experience. For fifteen years I ignored and neglected our library. We, of course, had a collection of books, absolutely inappropriate, but not far different from that of other schools. My students never read outside books and I made no attempt to have them do so.

Last spring I placed in our classroom a series of some one hundred books, every one of which was at least good and full of actual interest to the high school student. At first I said nothing about these books and they were not read. The students had been stung before and were on their guard. After about one month I would occasionally refer to some book in our library and casually suggest that it might make interesting reading. A sickly grin would, as a rule, be the only response. I next selected some half dozen books appropriate to the subject then being reviewed in class, held them up for inspection, made a few remarks about their contents and general value, and inquired if

anybody in the class would care to read them. As a special favor, one student in a moment of absent-mindedness, consented to take a book—Domville-Fife's *Submarine Engineering of Today*—a book that had not been recommended to the committee. Two days afterwards the book was returned with the characteristic remark: "Say, that's a corker, have you anything else by the same author?" I told him no, but that there were others "just as good." He has since found that to be true and now reads on an average about one book per week.

This started the ball rolling and the trouble now is not in getting books read, but rather in limiting them, so as not to interfere with the regular lessons. Over fifty per cent of the students now read outside books regularly. When the library books were collected just before the Christmas holidays, it was found that over eighty-five per cent of the students had one in their possession.

The trouble is not with the student, it lies instead with the teacher and library. I consequently repeat and maintain that the selection of an appropriate list of our best books is a crying need, and that it is to the advantage of every teacher to contribute what his or her experience has found to be of exceptional interest and value. Since last September, I have received seventeen letters requesting our final list.

Our list is not yet complete and will be revised and enlarged. Some sixty books are now being considered. At present the following books are recommended by the committee as appropriate for the high school student of physics:

1. GANOT—*Physics*.
2. JAMESON—*Elementary Mechanics*.
3. STEWART—*An Elementary Textbook of Physics (Mechanics)*.
4. MORLEY—*Mechanics for Engineers*.
5. *Encyclopedia of Formulas (Munn & Co.)*.
6. HENLEY'S *20th Century Book of Recipes*.
7. KAYE AND LABY—*Physical and Chemical Constants*.
8. HOPKINS—*Experimental Science*.
9. BERGET—*Conquest of the Air*.
10. HILDEBRANDT—*Airships Past and Present*.
11. TURNER—*Aerial Navigation of Today*.
12. CORBIN—*Mechanical Inventions of Today*.
13. WILLIAMS—*How It Works*.
14. WILLIAMS—*How It Is Done*.
15. WILLIAMS—*How It Is Made*.
16. GIBSON—*Scientific Ideas of Today*.
17. DOMVILLE-FIFE—*Submarine Engineering of Today*.
18. CORBIN—*Engineering of Today*.
19. KING—*Physics in Agriculture*.
20. BOYS—*Soap Bubbles*.
20. WILLIAMS—*The Romance of Modern Invention*.
22. GIBSON—*The Romance of Modern Manufacture*.

23. WILLIAMS—*The Romance of Modern Engineering.*
24. WILLIAMS—*The Romance of Modern Locomotion.*
25. WILLIAMS—*THE WONDERS OF MECHANICAL INGENUITY.*
26. BOND—*With Men Who Do Things.*
27. LODGE—*Elementary Mechanics.*
28. OGDEN—*Heat.*
29. TYNDALL—*Heat as a Mode of Motion.*
30. BOLTON—*Evolution of the Thermometer.*
31. RANDALL—*Heat.*
32. THURSTON—*History of the Growth of the Steam Engine.*
33. PAGE—*The Model Ford Car.*
34. PAGE—*The Modern Gasoline Automobile.*
35. FAUROTE—*How and Why of the Automobile.*
36. SHENSTONE—*Manual of Glass Blowing.*
37. JACKSON AND JACKSON—*Elementary Electricity and Magnetism.*
38. TIMBIE—*Elements of Electricity.*
39. THOMPSON—*Elementary Lessons in Electricity and Magnetism (New Edition).*
40. GIBSON—*The Romance of Modern Electricity.*
41. GIBSON—*Electricity of Today.*
42. HOUSTON AND KENNELLY—*Electric Arc Lighting.*
43. HOUSTON AND KENNELLY—*Electric Incandescent Lighting.*
44. HOUSTON AND KENNELLY—*Magnetism.*
45. HOUSTON AND KENNELLY—*Electric Heating.*
46. HOUSTON AND KENNELLY—*The Electric Telegraph.*
47. HOUSTON AND KENNELLY—*The Electric Telephone.*
48. MORGAN—*Wireless Telegraphy and Telephony Simply Explained.*
49. COLLINS—*Manual of Wireless Telegraphy and Telephony.*
50. PIERCE—*Principles of Wireless Telegraphy.*
51. MORGAN—*The Boy Electrician.*
52. HALL—*The Young Electrician.*
53. WALMSLEY—*Electricity in the Service of Man (2 Vols.).*
54. GIBSON—*Autobiography of an Electron.*
55. DUNCAN—*The New Knowledge.*
56. RAFFETY—*An Introduction to the Science of Radio-Activity.*
57. SODDY—*Interpretation of Radium.*
58. HAWKINS—*Electrical Guides (8 Vols.).*
59. HAWKINS—*Electrical Dictionary.*
60. TYNDALL—*Sound.*
61. CROSS—*Geometrical Optics.*
62. THOMPSON—*Light, Visible and Invisible.*
63. NEWALL—*The Spectroscope and Its Uses.*
64. TALBOT—*Moving Pictures, How Made and Worked.*
65. DEER—*Photography for Students.*
66. HOUSTON—*The Wonder Book of Light.*
67. GIBSON—*The Romance of Modern Photography.*
68. JONES—*Photography of Today.*
69. GIBBERNE—*Sun, Moon and Stars.*
70. BALL—*The Story of the Heavens.*
71. BURNS—*Story of Great Inventions.*
72. FOREMAN—*Stories of Useful Inventions.*
73. CAJORI—*A History of Physics.*
74. BUCKLEY—*A Short History of Natural Science.*
75. WILLIAMS—*The Story of 19th Century Science.*
76. LODGE—*Pioneers of Science.*
77. GARNETT—*Heroes of Science.*
78. JONES—*Thomas Alva Edison.*
79. FIELD—*The Story of the Atlantic Telegraph.*
80. CASSON—*The Story of the Telephone.*
81. CASSON—*Cyrus Hall McCormick.*
82. ABBOT—*Panama and the Canal.*
83. COCHRANE—*The Wonders of Modern Mechanism.*

84. BAKER—*The Boys' Book of Inventions.*
 85. WHITE & HARPER—*The Aeroplane.*
 86. VERRILL—*The Gasoline Engine.*
 87. PUTNAM—*The Gasoline Engine on the Farm.*
 88. PAGE—*Motor Cycles.*
 89. REETZ—*Electroplating.*
 90. RADCLIFFE & CUSHING—*Telephone Construction.*
 91. McCORMICK—*Electricity.*
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The Committee on a High School Physics Library, consisting of Messrs. Rendtorff, Burns and Tower, has been busily engaged for over a year in preparing the above list of books. Yet they realize that they have been unable to get in touch with all of the literature on the subject. The Editor of this Journal is asking all people who read this article if they will not kindly send to him at once the name, name of author and of publisher, date of publication, and price of any book on physics which they think ought to be added to this list. Such a list of additional books will be published to supplement the above, and will appear in the next issue of this Journal.—EDITOR.

THE CLASS IN LOCAL INDUSTRIES.

BY GEORGE W. FRIEDRICH,

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A year ago, upon the suggestion of Mr. W. E. Maddock, Superintendent of Schools, a class was organized in the high school for the purpose of studying the industries of Superior and vicinity. The work was placed in the commercial course of the school curriculum.

The class is fortunate in having a wealth of material from which to select. The industries of Superior are many and varied. They comprise the iron ore docks, blast furnaces, steel mills and foundries; coal docks, briquette plants, coke ovens with auxiliary industries and carbide furnaces; grain elevators, flour mills and a linseed oil factory; lumber yards, sawmills and wood manufacturing; electric power plants, transforming stations and telephone exchanges; a large harbor and ships; railroad terminals and repair shops, together with many minor industries. Though classes organized for this study in other cities may not have such a happy variety of material, still all towns and cities have enough to make the course decidedly useful.

The educational values are manifold. The first and most important is that of a ready acquaintance with the industrial units of the home community. It was found that less than ten per cent of the class had visited one-tenth of the fifty or more institutions before they had entered the class. Perhaps less than