versity May 20, he was elected secretary and addressed the assembly in explanation of the call. He was made chairman of the committee chosen to draw up a constitution for the society, and in the permanent organization was made chairman of the council. Rowland was made president, Michelson, vice-president, and Merritt, of Cornell, secretary.

Webster contributed a great deal to the success of the society in its early years. When he did not present papers of his own, he listened diligently to those read by others, a duty occasionally neglected by some of us, and his frequent comments were appreciative and illuminating. Moreover, they were delivered with such vigor, and such evidence of high spirits, that they created a cheerful and lively atmosphere for what might have been, at times, a rather perfunctory and dreary program.

Few men, it seems to me, have so genuinely rejoiced in the nature and achievements of their science as Webster did in physics and the mathematics pertaining thereto. He used to speak of the higher revelations in this field of study almost in the spirit of the old hymn,

I love to tell the story of unseen things above.

And yet he was not over mathematical in his discussions; for he had what, in a review[5] of J. J. Thomson's *Electricity and Magnetism,* he describes as "the thorough knowledge of mathematics that enables one to express mathematical truths in plain language."

His standing among American men of science after a dozen years of his professional life is well shown by the fact that he was elected a member of the National Academy of Sciences in 1903, at the age of 39, there being at that time, I believe, only two younger members, George E. Hale and Theodore W. Richards.

His *Dynamics* appeared in 1904, and the same general comments can be made on this book that apply to his *Electricity and Magnetism.* In reviewing the *Dynamics,* for the Harvard Graduates' Magazine, I described the author as "one of the best spokesmen for physics and the mathematics most used in physics," and said further that, although at first sight the volume under discussion might appear to be intended for the mathematician rather than the physicist, closer examination showed it to be written with a very lively sense of the objective world. Though printed in English, the book was published by Teubner, of Leipsic, as volume XI in the Series *Lehrbücher der Mathematischen Wissenschaften.*

Webster was, in fact, especially interested in mechanics, and his later research work in general had to do with matters of a mechanical nature, such as the energy of sound waves and the pressure developed in the explosion chambers of guns.

[5] SCIENCE, Dec. 13, 1895.

It is clear that he had done a great deal in his first twenty years out of college. In dealing, very briefly, with the remainder of his life, I can hardly do better than repeat certain paragraphs from a letter I wrote to the Boston *Herald* soon after his death, and which appeared in that paper on May 20: Thus far we discover no hint of impending tragedy in the record of his career, but in the light of what has come at last it is not difficult to see that years ago he began to be, in some measure, the victim of his own gifts and attainments. If there had been some element of wholesome dullness in his make-up, just enough to show him early in life that he must not try to attend all meetings of physicists, understand all papers, and speak all languages, while conducting a research laboratory and teaching all the higher branches of his science in his own university, his early years would have been less brilliant, but perhaps his later ones would have been happier. With the tremendous advances and revolutionary changes that have marked the history of physics during the last two or three decades, the program which he had undertaken became too much for the powers of any man.

He probably saw this at the last, but when it seemed too late to change. He grew somewhat morbid, a state of feeling partly shown and partly masked by his humorous habit in speech and writing. Those who knew him well saw that he was depressed at times, and even despondent, but his physical vigor was so great, his bodily health seemingly always perfect, that no one appears to have realized how dangerously his mind was plunging, under cover of those sometimes extravagant bursts of humor that seemed the evidence of high spirits.

Arthur Gordon Webster was a good fellow, and an upright, blameless man. In thinking, so far as I can bear to think, of what his last days must have been, I recall the words of William James, who had known the depths of despondency, spoken to another man of like experience, "No one has a right to speak of life who has never felt the *fear* of life."

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GAME LAWS FOR THE CONSERVATION OF WILD PLANTS

REFERENCE was made in a recent number of SCIENCE (January 12, 1923) by Dr. Gager to the Vermont law of 1921 in which a list of over forty species of native ferns and flowering plants were specified as protected. The law prohibited general commercial collection of these forms but allowed limited gathering for scientific purposes. By inference, all species not mentioned in that list are considered sufficiently common so that their natural in-

crease may be expected to take care of any demand. As a matter of interest, it may be reported that this law seems already to have produced the desired result. Evidence from both botanical and commercial sources indicates that Vermont has ceased to be open territory for the activities of the collectors of rare plants.

Several other states may be reported as having laws of similar import, already passed or up for consideration. In Connecticut, the interests backing conservation have been instrumental in having rare plants recognized as wards of the state, with special emphasis on the state flower, mountain laurel (*Kalmia latifolia*). As long ago as 1867 Connecticut recorded a statute to protect the climbing fern (*Lygodium palmatum*), then widely sought for home decorations under the name of "Hartford fern." The new statutes, in addition to establishing a protected list of laurel, climbing fern and several evergreens, provide also that shipments of wild plants, legally sold as from private land, must bear definite indication of their source, and that written permission from the landowner must be filed with county officers.

Through the activity of the Fairfield (Conn.) Garden Club, a very attractive and effective pamphlet has been printed for general distribution throughout the state. The author is Mabel Osgood Wright (Mrs. J. O. Wright), and the pamphlet is designed to put emphasis on the use and the proper picking of flowers which are not in danger of extinction. The Connecticut situation has been further dealt with in an article in the *American Fern Journal* (*13*, 56–59, May, 1923) by the present writer, including a complete copy of the Connecticut statutes. This may be obtained reprinted as a leaflet of the Brooklyn Botanic Garden on request to the writer.

California also has a law, specifying general protection for a shrub largely in demand for Christmas decoration, Toyon berries (*Heteromalis arbutifolia*), and, in addition, practically all the wild flowers of Yosemite are protected, particularly the snow plant (*Sarcodes sanguinea*). Maryland has a comprehensive law on its books. Massachusetts proposed last year a law designed particularly to conserve the state emblem, the mayflower (*Epigaea repens*), but this failed of passage. It seems to have been poorly conceived, in part at least, as it provided fine or imprisonment for any sale of the mayflower, regardless of whether the seller had the legal right of ownership.

It needs to be realized that in the preparation of any protective law for rare plants the sharp distinction between animals as the property of the state and plants as the property of the landowner must be recognized. Wild animals, even though they may nest or burrow in one farm, ordinarily pass frequently beyond private boundaries. In the case of the migratory bird, the nation holds title as evidenced in recent laws; some even required international agreement for control. The plant, however, belongs with the land in which it grows, and no restriction may be placed on the farmer's operation of this land, except possibly in the case of weeds or poisonous plants where the police power of the state might be involved. Eventually, through the exercise of this police power, we shall see state control of forests on privately owned land, with definite regulation of methods of lumbering, replanting, etc. Such a law was introduced into the New York State legislature the past session but failed of passage.

A copy of a plant law recently proposed in Illinois has come to hand and seems to comprise in a brief statement all the desirable features of a general state law. Its wording is as follows:

> A bill for an act. An act for the conservation of the wild plants of the state of Illinois. Certain plants not to be destroyed or sold—Penalty—
>
> Be it enacted by the people of the state of Illinois, represented in the General Assembly: Any person, firm or corporation who shall, within the state of Illinois, knowingly buy, sell, offer or expose for sale any blood root (Sanguinaria canadensis), lady slipper (Cyprepedium parviflorum and Cyprepedium hirsutum), columbine (Aquilegia canadensis), trillium (Trillium grandiflorum and Trillium sessile), lotus (Nelumbo lutea), or gentian (Gentiana crinita or Gentiana Andrewsii), or any part thereof, dug, pulled up or gathered from any public or private land, unless in the case of private land the owner or person lawfully occupying such land gives his consent in writing thereto, shall be deemed guilty of a misdemeanor, and shall be punished by a fine of not less than $10.00 nor more than $100.00 and costs.
>
> Limitation—Section 4. All prosecutions under this act shall be commenced within six months from the time such offense was committed, and not afterwards.

The twenty-year activities of the wild flower preservation societies and other similar organizations seem finally to be bearing rich fruit. Other recruits are joining. At the last annual convention of the Society of American Florists, held at Kansas City last summer, a communication urging wild flower conservation from the Garden Club of America was favorably received and the florists' organization went on record as supporting conservation. Similar action was taken by the Florists' Telegraph Delivery Association, representing the retailers' interests as the Society of American Florists represents the growers and wholesalers. Individual florists have even voluntarily agreed to refrain from the use of cut laurel in their store work.

The problems to be solved legally seem to be three: (1) The protection of rare forms from commercial collection by plant sellers; (2) increased penalties for sheer vandalism, and the invasion of private and

public property in the neighborhood of large cities; (3) provision for state supervision and enforcement of whatever laws are adopted. Another matter for state action is found in the establishment of increased areas of forest reservation. To be of value in plant protection, such reservations need to be large ranges. Small open park areas established as publicly owned land constitute a greater danger to rare plants than continued private ownership. When the west Green Lake near Jamesville, N. Y., was set aside as a state reservation, the public flocked there by the hundred and carried away most of the fern plants.

Absolute protection in the neighborhood of cities seems next to impossible, except by the establishment of guarded sanctuaries, plots of ground sufficiently large to afford a variety of habitats, where rarities may be maintained much as are valuable paintings, books, etc., under proper curatorial supervision. If the saving of some particular species constitutes an emergency, private initiative will probably be necessary, such as was responsible for the institution of Birdcraft Sanctuary, at Fairfield, Connecticut. An area of about ten acres was surrounded with a boy-proof, cat-proof fence; a competent warden was installed with dwelling inside, and the rare plants of the state are now being accumulated. This little park serves also as an extension of the local school system, and frequent class visits are made.

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CERTIFIED METHYLEN BLUE

THE Commission on Standardization of Biological Stains has begun the plan of certifying certain definite batches of different stains that are submitted to it for approval. In every case the certification is issued only for the batch of which a sample has been tested; hence any bottle of stain sold with the commission endorsement may be regarded as being of the same lot as the sample examined by members of the commission for the purposes stated on the label.

The commission is issuing two different forms of label and is giving companies the option of using either on batches of stain endorsed by the commission. One of these forms is to bear on it the name of the stain; the other bears nothing but the certification statement and is to be used in conjunction with a label printed by the manufacturer and approved by the commission. Cuts of these two labels accompany this article. Any other form of certification appearing on bottles of stains must be regarded as a spurious statement, issued by the manufacturer or dealer without consulting the commission.

The different stains are to be taken up in this way one by one. Up to the present time methylen blue is the only one for which actual certification of this sort has been issued. The methylen blue samples submitted for testing by the commission were requested of the manufacturers to come up to the following specifications.[1]

(1) Samples of methylen blue to be considered must be of the so-called medicinal grade. It is expected that they will meet the U. S. P. requirements, but less weight will be attached to this consideration than to those following. In other words, a sample giving satisfactory performance will not be excluded because of failure in some particular to meet these chemical requirements.

(2) Methylen blue for the purpose above specified must contain at least 75 per cent. total color, this to be determined by one of these alternative methods:

(*a*) By measurement of the absorption of light of a solution of known concentration. The extinction coefficient of a solution of 10 parts of dye in 1 million parts of water, when measured in a 1 cm. layer at wave length 660 must equal or exceed 1.35.

(*b*) By reduction with titanous chloride. When reduced by titanous chloride in an atmosphere of carbon dioxide, 1 gram of the dye must consume at least 4.69 cc. normal titanous chloride solution.

(*c*) An alternative volumetric method by means of standard iodine solution is under investigation by the Association of Official Agricultural Chemists and is expected to be made available in the near future.

(3) The methylen blue must have no solvent action on casein. This is to be determined as follows: Prepare two 1 per cent. solutions of this stain, one in distilled water, the other in tap water. Place single drops of skimmed milk on each of two clean glass slides and smear each drop over a surface of about one square centimeter so as to form a very thin film of milk; allow this film to dry without heat or at a temperature not over 60° C., immerse for about a minute in xylol to dissolve the fat, then for the same length of time in alcohol to coagulate the casein. After this immerse one slide in the distilled water solution of methylen blue and the other slide in the tap water solution, allowing them to stand for three minutes; at the end of this period there should be no action of the stain on the casein.

(4) The methylen blue should stain the diphtheria organism in any of the types of solutions ordinarily employed. It should be tested as follows: Prepare three solutions of the stain, one a 1 per cent. solution in distilled water, the second a mixture of three parts saturated alcoholic solution to 10 parts of distilled water, and the third three parts of saturated alcoholic solution to 10 parts of 0.01 per cent. NaOH.

[1] These specifications, so far as they refer to optical properties, are subject to revision in the near future.