macy has reached a higher educational status than our own. This fact should be recognized by Minnesota pharmacy and support given accordingly to what the College is doing for pharmacy and so we recommend again that the Association go on record as supporting the endeavor of the College to secure more adequate quarters and equipment and a general expansion to go with these, up to a parity with medicine and dentistry in preprofessional work."

The faculty, the pharmacists and the students all have declared themselves in favor of the proposed five-year course. What the Regents of the University will do with the recommendation of course remains to be seen but the President and the Regents have always been sympathetic with reasonable advancements.

In my judgment therefore, there is no question about the future of pharmacy. It will steadily become more professional and scientific. Pharmacy itself must and, I believe, will more fully recognize and assert its own inherent professional and scientific nature and must more fully realize its relation to public health collectively with medicine and dentistry. It can expect material assistance from higher educational institutions but only if it places a sufficiently high and true evaluation upon itself. The difference in public estimation of the various professions is based primarily, but not entirely, upon the educational standards of the respective professions. As soon as pharmacy realizes this fact sufficiently it will promptly, either alone or with assistance, work for and reach more adequate educational standards.

I have a general program for the development and expansion of colleges of pharmacy which I will be glad to publish if there is request to that end.

THE CULTIVATION OF TEA IN THE PACIFIC NORTHWEST.

BY LOUIS FISCHER AND FREDERICK F. JOHNSON.*,[1]

Two species of Japanese tea were obtained and cultivated, namely: 1. *Thea Sinensis, Theaceæ* (*Camellia Thea*, Link, *Camellia theifera*, Griff), *var. viridis.* 2. *Camellia Japonica, Theaceæ*, common variety.

A description of this *Thea Sinensis* is as follows:

Leaves oblong-lanceolate, acute, often concave, light green, to 5 inches long; flowers white, 1 to 4; sepals pubescent, ciliate; petals 5 to 9; styles free; branches spreading.

A description of this *Camellia Japonica* is as follows:

Glabrous shrub or tree; leaves ovate or elliptic, acuminate, very shiny and dark green above, 2 to 4 inches long; flowers red, 3 to 5 inches across; petals 5 to 7, round; ovary glabrous. White and pale rose and various double kinds. There are many named varieties.

Only the *Thea Sinensis* will be discussed in regard to cultivation as both species behaved similarly in this respect.

One-quarter pound of seeds was obtained in 1924 from T. Sakata and Co., Yokohama, Japan. They were planted in a greenhouse and maintained at a temperature of 60–65° F. The soil was a rich garden loam consisting of black soil, leaf mold, and sand with no added fertilizer.

* The authors wish to acknowledge the helpful assistance rendered over a period of years by Mr. Ludwig Metzger, caretaker of the eight acre University of Washington Garden of Medicinal Plants; also, the facilities of the University of Washington Experimental Pack Forest on the slopes of Mt. Rainier.

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Of the one-quarter pound of seeds, eight seeds sprouted and formed plants. After four years the plants were 8 to 12 inches high. At this time seven plants were transplanted into the open and were grown in a rich loam with bone meal added. All seven plants grew and developed, growing to a height of about 30 inches at the present time, although their growth was hindered by several unavoidable transplantations. The first blossom appeared in 1929 and blossoms have continued every year. The first seeds were collected in July 1931 and the second seeds in October 1933. The seeds appeared normal but did not develop. A record of temperature was kept for the period of growth from 1928 to 1933. During this interval the temperature at one time dropped to the unusual level of 6° F. During this cold spell the roots were protected but the leaves were left unprotected; three plants were lost.

Two hundred and fifty seeds from the plants growing outside were collected and planted in January 1934; 17 sprouted; 695 of the same seeds were planted in March 1934 and 2 sprouted. Eighteen cuttings from the greenhouse plant were planted outside in October 1933 and 16 grew. The plants seem to grow better when protected from extremely bright sun.

Many more seeds have been received from Japan since 1924 but only those which were received and planted in 1924 have grown. In March 1934, 600 seeds were received from Tamokie Company, Tokyo. Four hundred were planted outside and 200 were planted in a hot bed in the green house. All failed to grow. In view of this, another quantity was ordered from the same source and was received in November 1934. The shells of 180 seeds were opened and only 45 appeared to be in good condition. It has been our experience that seeds which are stored for a month or more usually will not sprout.

It has been reported that tea will grow best at an altitude of about 1000 feet. In order to observe this, some plants were transplanted as follows:

Three large cuttings and 3 seedlings at 1150 feet.
Three cuttings and 3 seedlings at 800 feet.
Four cuttings and 4 seedlings at 100 feet near the salt water.

All cuttings were lost and all seedlings have done well. The determination of the effect of altitude on the chemical composition of tea must await further development. No effect upon growth was noted except a retardation at 1150 feet due to the severe winters.

	Thea Sinensis.		*Camellia Japonica.*
	New Leaves.	Old Leaves.	New Leaves.
Loss of moisture on air drying	67.76%	57.17%	60.77%
Moisture in air-dried leaves used for analysis	5.82	5.93	4.98
Ash	4.84	4.40	5.53
Water-insoluble ash	2.51	2.32	2.17
Acid-insoluble ash	0.05	0.03	0.00
Petroleum ether extractive	2.45	3.90	1.93
Volatile petroleum ether extractive	0.26	0.36	0.19
Ether extractive	2.92	2.67	1.20
Volatile ether extractive	0.24	0.20	0.12
Alcohol extractive	39.97	38.19	22.14
Volatile alcohol extractive	5.33	4.92	2.91
Water extractive	15.98	15.55	18.41
Total nitrogen	2.46	1.87	1.75
Protein	13.06	10.25	10.37
Crude fiber	13.70	10.02	18.24
Caffeine	1.25	0.83	0.27
Tannin	7.26	6.22	5.25

Leaves of the plants from the locally grown seeds were collected for analysis in July. The four young leaves nearest the tip were collected and the leaves which

were one year old were collected separately and dried at room temperature. The analyses were made by the methods of the Association of Official Agricultural Chemists.

SUMMARY.

During a period of 12 years two species of Japanese tea have been acclimatized successfully and grown from seed in the Northwest. An analysis of the leaves is reported. The University of Washington College of Pharmacy will continue this work with the hope that tea cultivation eventually may become commercially profitable in this region.

A COLOR TEST FOR LECITHIN.

EDSEL A. RUDDIMAN.*

A search has been made for a test for the identification of lecithin other than the determination of the presence of phosphorus and nitrogen in compounds which are soluble in alcohol and petroleum ether and insoluble in acetone or methyl acetate. The lecithin used in these tests was the ordinary commercial preparation which was repeatedly purified by dissolving in petroleum ether and precipitating with acetone.

Many color reagents and reagent mixtures have been applied to lecithin but only one, namely, sulphuric, gave any characteristic color test. A smear of lecithin on a watch glass rubbed with a small portion of a drop of concentrated sulphuric acid became violet colored after a few minutes, following which the color slowly faded. Slightly warming the mixture hastened the reaction. In order to obtain a positive test it was found that the lecithin had to be sufficiently free of impurities to prevent masking of the violet color by other colored reaction products. The presence of water or alcohol lessened or prevented the formation of the violet color. Lecithin was found to give a violet color with nearly every reagent which contained sulphuric acid as one of the ingredients. It is not known whether the color results from the action of sulphuric acid on lecithin itself or on some accompanying impurity not removed by ordinary purification. Furthermore it cannot be claimed that the test is specific for lecithin, but under the conditions of the test it is strongly indicative of its presence. The test is very delicate as less than 0.001 gram of 65 per cent commercial lecithin gives the coloration.

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More than twenty-five common articles of food, such as beets, peas, lettuce, tomatoes, apples, wheat, corn, almonds and meat, when tested in the following method gave the violet color. The material was dried, coarsely ground, extracted with alcohol and the extract evaporated to dryness. The residue was reëxtracted with petroleum ether, and the petroleum ether evaporated. The appearance of a violet color when a smear of the final extract is treated with a drop of sulphuric acid is indicative of lecithin in the original product.

STERILE AND STERILIZATION.

The Council on Pharmacy and Chemistry has formally gone on record "as disapproving of the use of the terms sterile, sterilize and sterilization in a bacteriologic sense other than in their correct scientific significance; *i. e.*, meaning the absence or destruction of all micro-organisms. These terms are not relative and to permit their use in a relative sense not only is incorrect but opens the way to abuse and misunderstanding. It is questionable that there are any chemical agents tolerated by the skin which will produce sterility, although there are some which will reduce the bacterial flora of the skin to such an extent that they may properly be described as disinfecting agents. For such agents there is no objection to the use of the terms *disinfecting*, *bactericidal* and *bacteriostatic*."

It is announced in *Arch. Pharm. og Chemi* that Docent S. A. Schou has been appointed Professor of Pharmacy at the Pharmaceutical Institute (Farmaceutiske Laereanstalt) in Denmark. Professor Schou has an international reputation for his researches in the application of physical chemistry to pharmacy, and the Danish journal comments on the value of his appointment for the strengthening of scientific pharmacy in that country.