the host plant, coil up and dry out themselves. In this dried-out condition they may remain motionless but alive for years. On falling to the ground the affected seeds absorb moisture and the worms uncoil, bore their way out to freedom and, finding new grass plants, enter them and ascend to the flower, thus completing the circle of development.

The affected seeds are usually shorter, sometimes, however, much longer than the normal seeds and are incapable of germination. The glumes are much enlarged and the spikelets stand out at a different angle from, and are often more crowded on the axis. In fact, the affected plants may appear to be specifically distinct, and one case is known in America where a diseased plant was actually described as a new species, the presence of the nematodes having escaped the notice of the investigator.

Although known in Europe for a long time, practically no attention has been paid to this type of nematode disease in America. On behalf of the Bureau of Plant Industry of the U. S. Department of Agriculture, the writer has resumed his work, interrupted four years ago, on the nematode diseases of plants. He has found the disease in question in grasses from Texas, Oregon and Alaska, in the genera *Chætochloa, Agropyron, Elymus, Calamagrostis* and *Trisetum*. Two, possibly three, species of nematodes were found, all belonging to the genus *Tylenchus*. Cultural experiments are now under way to determine, if possible, whether any of them are identical with *T. tritici* of wheat in Europe. In the meantime, the writer would be very glad to receive all specimens of grasses and other plants suspected of harboring nematodes in their parts above ground as he wishes to determine what plants are affected and which species of nematodes cause the diseases.

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SPECIAL ARTICLES.

THE OLYMPIC PENINSULA OF WASHINGTON.

A visit of five weeks in western Washington in 1902 gave opportunity for the following notes on a region as yet almost unexplored. The Olympic Peninsula forms the extreme northwest corner of the United States, and, as may be seen from any map, is almost cut off by water on every side. The climate is mild, temperatures ranging at sea level from 22° F. in winter to 86° F. in summer. The annual precipitation amounts to 120 inches at Neah Bay. Rain falls gently, and is to be expected for ten months of the year. In July and August there is usually no rain at all, so that the forest litter becomes very dry, and serious fires sometimes occur. Snow is only occasional at sea level, but at high elevations all of the precipitation is in the form of snow.

The peninsula is mostly occupied by the Olympic Mountains, an irregular group, radiating out from Mt. Olympus, 8,150 feet. Many other peaks rise from 7,000 to 8,000 feet, and large areas lie above 6,000 feet. As the whole tract is only sixty miles wide from east to west, and one hundred miles long, the hills and valleys are extremely rugged and precipitous. "Glaciers and snow-fields are numerous in the central parts of the mountains" (Dodwell and Rixon). Persons sometimes speak of the Olympics as volcanic, but we saw no sign of volcanism either in the rocks or in the pebbles of the Quiniault or Queets rivers. Along the coast a soft, green, marly, Cretaceous sandstone lies in gentle folds, each crest jutting out to sea as a steep headland 150 to 500 feet high. Rivers occupy the synclines. In the sandstone many fossils are found. Especially noticeable were stumps, logs and fragments of wood at different levels and in various stages of transition to lignite. Capping this stratum is a layer of recent yellow gravel, varying from ten to forty feet in thickness, and also enclosing logs and stumps. Below Point Granville the beach is low and sandy, but north of this steep cliffs rise directly from high water line. At various points (Copalis, Klaylock Creek) government inspectors have found indications of petroleum, but no other valuable minerals are known.

The vegetation of the Olympic Peninsula is truly remarkable. Below 5,000 feet is the great northwestern forest, which must be seen to be appreciated. Douglas fir, tideland spruce and 'red cedar' (*Thuja plicata*) reach

gigantic proportions. The available timber per township runs from '3,000 feet B. M. amid the high mountains, up to 59,000 feet B. M. in the northwest corner' (Dodwell and Rixon). What with fallen timber and undergrowth of ferns and shrubs the forest is a veritable jungle. By hard work one can travel a quarter of a mile an hour off the trails!

Salal-berry (*Gaultheria shallon*) and species of *Rubus, Vaccinium* and *Ribes* contribute largely to the denseness of the jungle, and furnish abundant food for man and beast. The matted tree tops admit only a gloomy light below, and the darkness is deepened by great blankets of *Selaginella* (*S. oregana*) and bearded lichen (*Usnea*) depending from the branches. A thick bed of moss covers all the ground and swathes the bases of the tree trunks. Above 2,000 feet, however, the forest is quite open, but travel is impeded much more seriously by the impassably sharp hogbacks and steep canyon walls. The mountains slope more gently southward than on other sides, and it is believed that Mt. Olympus could be reached from the valley of the Quiniault River. The major part of the peninsula is held as the Olympic Forest Reserve. Two reports on this by Dodwell and Rixon (1, U. S. Geol. Surv., 21st Ann. Report, Part V., 1900; 2, ditto, Professional Paper No. 7, 1902) with maps and illustrations give the best accounts yet available concerning the region.

The fauna is equal to the flora in richness. Black bears, panthers, wild cats and wolves are numerous. A few squirrels and the mountain beaver are found. Deer and elk are plentiful. The garter snake is the only reptile. Wild duck and pheasants are occasional, and the familiar robin is seen about the houses. Salmon and trout of several kinds abound in all streams that are large enough. Quiniault salmon is said to be the finest on the coast. The report of the expedition from the Field Columbian Museum on the mammals of the Olympic Peninsula is the only record of its fauna.

In each river valley a distinct tribe of Indians originally made its home. The Makah at Cape Flattery were studied by Swan, and are an extremely interesting group. The Quillayutes and Quiniaults would equally repay an immediate investigation; but their old habits are rapidly vanishing before the government schools. Whites began to settle the Quiniault Valley in 1892, but the movement is very slow on account of the difficulty of clearing land and of getting produce in and out. It is estimated to cost $200 an acre to remove the timber enough for farming operations.

Here, then, is almost virgin soil for any kind of scientific investigation. Just enough has been done to enable the student to start intelligently and progress without interruption on any phase of this interesting region.

HENRY S. CONARD.

JOHNS HOPKINS UNIVERSITY,
February, 1905.

QUOTATIONS.

DR. OSLER ON THE PERIODS OF A TEACHER'S LIFE.*

I AM going to be very bold and touch on another question of some delicacy, but of infinite importance in university life, one that has not been settled in this country. I refer to a fixed period for the teacher, either of time of service or of age. Except in some proprietary schools, I do not know of any institutions in which there is a time limit of, say 20 years' service, as in some of the London hospitals, or in which a man is engaged for a term of years. Usually the appointment is *aut vitam aut culpam,* as the old phrase reads. It is a very serious matter in our young universities to have all of the professors growing old at the same time. In some places only an epidemic, a time limit, or an age limit, can save the situation.

I have two fixed ideas well known to my friends, harmless obsessions with which I sometimes bore them, but which have a direct bearing on this important problem. The first is the comparative uselessness of men above

* From his valedictory address at the Johns Hopkins University, given at the annual commemoration exercises on February 22, and printed in the *Journal of the American Medical Association.*