

# U.S. Observatory Asks New Instruments

*Astronomy*

The U. S. Naval Observatory, which thirty years ago was abreast of the world in its scientific equipment and once had the world's largest telescope, is today far behind most other nations.

"For almost a generation," stated Captain C. S. Freeman, superintendent of the observatory, "we have been marking time."

This situation, it is explained, has developed due to the lack of money to buy suitable instruments.

Dr. James Robertson of the Naval Observatory staff, told the House Committee on Appropriations, according to hearings just released, that in connection with his activities as delegate of the Navy Department to the International Astronomical Union at Leiden, Holland, during July, 1928, he visited several national observatories, to find that most were exceedingly up-to-date.

"Where we were giving 25 or 30 years ago, results down to one one-hundredth of a second, the demand now is to have it down to one one-thousandth of a second," he said. "If they were giving then declinations to one-tenth of a second, they demand now one one-hundredth of a second."

Instruments which Dr. Robertson and Captain Freeman have asked for the observatory from Congress in order to bring it up to date are as follows:

A pair of 24-inch doublet photographic objectives for a twin photographic telescope—\$50,000.

A 12-inch guiding telescope, with finder and micrometer—\$6,000.

Mounting for these items—\$20,000.

A 6-inch or 8-inch Ross-type wide-angle lens, with camera and mounting—\$9,000.

A 6.5-inch photoheliograph of 60 feet focal length, with mirror, mounting, and clockwork—\$8,000.

Measuring engines and plate holders for new astrographic instruments—\$7,000.

In addition to these items, the Naval Observatory would like to have \$43,000 for replacement and modernization of present equipment; \$24,000 for a photographic laboratory; \$41,000 for domes and structural appurtenances for new installations, and \$17,000 for research fund for improving the methods of deriving astrometric results by photographic means. The total sum required would be \$225,000.

The Bureau of the Budget, though not unsympathetic with the needs of

the Observatory, it was explained to the committee, has not seen fit to grant the amount for new instruments and modernization of the Observatory.

The only items in the Naval Appropriation bill now before the House are \$174,380 for the Naval Observatory work, including \$2,500 for pay of computers on piece work in preparing for publication the American Ephemeris and Nautical Almanac, and in improving the tables of the planets, moon and stars, and \$25,700 for miscellaneous expenses.

## Plan to Observe Eclipse

With a party of their astronomers now crossing the Pacific to observe the eclipse in the Philippines in May, the U. S. Naval Observatory is already making preliminary efforts to observe the next one. This will happen on October 22, 1930. In the Naval Appropriation Bill, recently reported to the House, an item of \$3,600 is included for observations of the eclipse. Owing to the fact that preparations for such observations must be made many months in advance, the eclipse must be thought of now, even though it occurs in the fiscal year ending June 30, 1931, Captain C. S. Freeman, superintendent of the Naval Observatory, told the Appropriations Committee.

With its path of totality crossing the South Pacific Ocean, there are only two small islands from which the eclipse can be observed. One is Nukurita, in the Ellice group, but is flat, thickly wooded, and difficult to reach. The other is Niuafoou Island, situated about midway between the groups of Samoa, Fiji and Tonga. It belongs to the principality of Tonga, the only self-governing state in the South Pacific. The chief communication with the rest of the world is by means of the monthly inter-island steamer, from which mail for the island is thrown overboard in a soldered tin can. The natives then swim out and get the can, from which procedure comes the local name "Tin Can Island". The owners of the steamship line have announced that they will probably be able to let the boat stop for a few hours to disembark a responsible party.

Probably the Naval party, if the appropriation is approved, will travel to the American naval base at Tutuila, in Samoa, where a naval tug can be secured to carry the party the remaining 300 miles.

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## NATURE RAMBLINGS

By FRANK THONE

*Natural History*



## Coal-Pile Botany

Though there may be a gray blizzard howling out of doors, or the country be locked in the iron grip of a cold wave, there is always a chance to do a little nature-study hike down the cellar steps to the coal pile. The trail leads back more millions of years than there are steps in the cellar stars, too; for it is a long, long time since the black lumps beside the furnace were green herbs and trees in the Carboniferous forests.

Not all coals are really rich in easily traceable plant patterns, but nearly all of them will reward a search with the prints of leaves or stems of one sort or another. The commonest thing to find, of course, is a print like the leaf of a fern. These have been known for a long time, and gave rise to the idea, long held, that most of our coal was formed from ferns. Undoubtedly a good deal of it was, but it has been discovered that some of these fern-leaved plants bore real seeds, which no true fern ever does, and that therefore these plants must be classified with the seed plants in spite of the evidence of their leaves.

Other coal prints will show traces of radiating or star-like whorls of leaves with a slender connecting stem, suggesting the structure of a galium or bed-straw. This was a genus of fern-like vines or scramblers apparently very common in the Coal Age swamps.

Traces of stems are frequently found in coal, marked all over with regularly recurring patterns or with little pits. These are remnants of the "seal-trees" and "scale-trees" of the period; tall, thick-branched objects, whose trunks and limbs were thickly clothed all over with sharp, yucca-like leaves.

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There are 1,465 bears in the National Parks, a new census shows.