$$\Psi = \exp(2\pi i W/h)$$

W may be considered as a generalization of Hamilton's principal function, $-Et+S$, where S is the action. The writers feel that much good would come from the establishment of committees on mathematical notation in each of the national societies dealing with physical and chemical science, and trust that this note will evoke discussion directed toward this aim.

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MONOLITHIC SOIL PROFILES

EVER since the serious study of soils began, the preparation of portable monolithic soil profiles has been a time-consuming task. The department of agronomy of the North Dakota Agricultural College and Experiment Station has developed a rapid method of taking monolithic soil profiles to the depth of forty inches in stone-free soils.

Bore a hole forty-six inches deep with a nine-inch basket type post-hole auger. With a spade, dig a rectangular recess two to four inches in depth opposite the portion of the exposed soil to be sampled. After removing the débris from the hole, square the surface opposite the recess and place the open side of a rectangular trough of eighteen gauge galvanized steel two inches by four inches by 40 inches against the prepared surface. Place rigid backing against the steel trough to prevent its buckling under pressure. After placing footing in the recess introduce a short jack with three-foot handle (known as a balloon tire jack) between the footing and the trough and apply pressure near the bottom end of the trough and again near the top of the trough. If pressure is applied in excess of the pressure needed to fill the trough, layers develop in the soil at right angles to the direction of the pressure facilitating the removal of the filled trough. Placing the spade in the soil two or three inches from the open side of the trough pointing toward the trough and extending gentle pressure toward the excavation, the profile is easily broken away.

A monolithic profile may be taken from stone-free soils in one to one and a half hours. All students of soil phenomena will find this method worthy of trial.

A more complete description of this method and its adaptation to glacial soils will appear later.

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AN EXTINCT CAMEL FROM UTAH

IN SCIENCE for July 6 my friend Dr. Alfred S. Romer gave us an interesting account of the discovery of a skull of a camel, probably *Camelops hesternus*, in a dry lava-flow cavern near Fillmore, Utah. According to the statements furnished, the partial skull was buried at a depth of three or four feet in a fine eolian dust, about two hundred feet back from the mouth of the cavern. The bone had undergone no fossilization and there adhered to it a fragment of organic matter regarded as muscle. Dr. Romer holds that this discovery shows that this species lived in the west up to a relatively late time, only several centuries or at most several thousands of years ago. The present writer suggests that the recent deposits along the streams of the Great Basin be carefully scrutinized for additional remains of these modern camels.

Dr. Romer further concludes that my theories about the succession of Pleistocene vertebrates are thereby rendered much in need of revision. If I may judge from his suggestions that the fossils found at Lake Lahontan, Rancho La Brea and Frederick, Oklahoma, may be of a rather late date, his revision of Pleistocene history will restore the happy time when any species whatever of Pleistocene mammal might be expected to occur in any late Pleistocene deposit whatever, especially if its occurrence appeared to have any bearing on human history. A revision of that kind would evidently bring relief to some geologists and to many, if not to most, of our anthropological colleagues.

The determination of the geological age of the skull in question will turn upon two considerations. The first has regard to the length of time organic matter can endure in the conditions described by Dr. Romer. He grants that it might last indefinitely if bacterial action be prevented. Why not then a half million years? If the flesh has lasted until it has become covered with fine dust three or four feet thick, how are the destructive bacteria to reach it? Even if the dust were to be wet the bacteria would be filtered out before reaching the putrescible substance. Aqueous solutions of organic matter will endure indefinitely if bacteria are excluded. And probably that dust has never been wetted since it was deposited.

Dr. Romer is sure that the muscle could not have resisted decay for a half million years because that climate enjoys an annual rainfall of fifteen inches. From Bigbone Cave, Van Buren County, Tennessee, Dr. Harlan obtained megalonyx bones which, buried in fine dust, retained patches of cartilage, shreds of ligaments and pieces of the horny nails; and this was in a region where there is an annual rainfall of fifty or more inches.

The second consideration bearing on the age of the camel is the age of the cavern; and Dr. Romer, basing