A Peculiar Pipe from the Susquehanna.

I BEG to present the outlines of an Indian pipe which may be interesting as representing the figure of one of the Delaware "Totems." The relic is composed of a dark green steatite, carved into an admirable image of a turtle. Fig. 1 represents the back of the animal, which is well polished and distinctly marked with the lines shown in the figure.

FIG. 1.

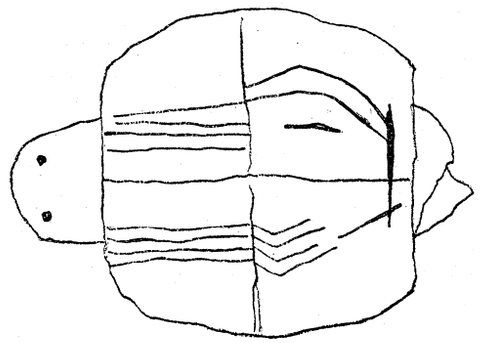

FIG. 2.

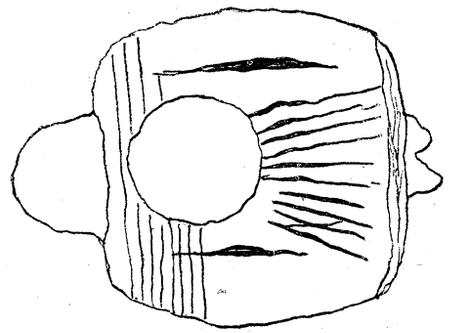

FIG. 3.

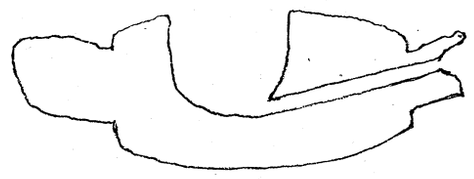

Fig. 2 represents the under surface, which contains the cavity of the pipe and the ornamental (?) markings. The hole for the stem is well drilled, of a smooth bore, and inclined at the angle given in the sketch. This unique specimen was found some thirty years since, by a friend of mine, on the present site of the village of Fairview on the Susquehanna, in close proximity to an old Indian burying ground. HARVEY B. BASHORE.

West Fairview, Pa., Jan. 5.

Soils and Alkali.

THE last bulletin of the Colorado State Agricultural Experiment Station at Fort Collins published in October and entitled "Soils and Alkali" is issued in the name of Prof. D. O'Brine.

The subject treated is one of acknowledged importance, and for this reason and the fact that it is issued under the auspices of an institution expressly endowed by Act of Congress for the purpose of scientific investigation, renders the fact to which I beg leave to call your attention, especially lamentable.

The first eleven pages of this bulletin are, so far as statement of facts are concerned, practically extracted verbatim from a recent work of my own entitled "Rocks and Soils," and published by Messrs. Wiley & Sons of New York, little more than a year ago.

In support of this assertion I enclose extracts from the bulletin mentioned and from my own work, a comparison of which in parallel columns will demonstrate absolutely the truth of my assertion. I may add further that the specimens extracted embrace only a small portion of the subject matter to which the same assertion would hold true; they are offered however as specimens and *specimens only*.

STOCKBRIDGE (p. 159).

"The quantity of water thus required and evaporated by different agricultural plants during the period of growth has been found to be as follows:

One acre of wheat	exhales	409,832 lbs of water.	
" " " clover	"	1,096,234	" " "
" " " sunflowers	"	12,585,994	" " "
" " " cabbage	"	5,049,194	" " "
" " " grape-vines	"	730,733	" " "
" " " hops	"	4,445,021	" " "

O'BRINE (p. 8).

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STOCKBRIDGE (p. 160).

"Deitrich estimates the amount of water thus exhaled by the foliage of plants to vary from 250 to 400 times the weight of dry organic matter formed during the same time."

O'BRINE (p. 8).

Dietrich estimates the amount of water exhaled by the foliage of plants to be from 250 to 400 times the weight of dry organic matter formed during the same time.

STOCKBRIDGE (p. 165).

"Hoffmann concluded that the quantity of matter dissolved from the soil by water varied between 0.242 and 0.0205 per cent of the dry earth."

O'BRINE (p. 9).

Hoffman has estimated that the quantity of matter dissolved from the soil by water varied from .242 to .0205 per cent of the dry earth.

STOCKBRIDGE (p. 166).

The sources of the heat of the soil are three; namely, solar heat, as the sun's rays; heat of chemical decomposition within the soil; and the original or plutonic heat of the earth, proceeding from the still molten earth interior.

The latter source though great in itself yet is so removed from the surface, and the radiation there is so rapid, that this heat is of no considerable value to the plant. The heat of decomposition, though considerable in soils rich in organic matter, occurs only in the presence of comparatively high temperatures, and is therefore not manifest except in soils not needing its action to influence their behavior towards vegetation. The sun, therefore, remains the only source of heat of material importance as related to the production of plants from the soil."

O'BRINE (p. 9).

The heat comes from three sources: Solar heat, as the sun's rays; heat of chemical decomposition within the soil, and the original heat of the earth's interior. The latter cannot be of any value to plants; the heat of chemical decomposition is not of any value, except in a few special cases. The sun, therefore, remains the only source of heat of practical importance in relation to the production of crops from the soil.

STOCKBRIDGE (p. 125).

"Oats, rye and buckwheat thrive with the lowest amount of organic matter, requiring but from one to two per cent, while wheat and tobacco evidently require most among common agricultural products growing best on the soils containing from five to eight per cent of dry organic matter.

O'BRINE (p. 4).

Oats, rye and buckwheat thrive with the lowest amount of organic matter, requiring from one to two per cent. Wheat and tobacco seem to require most among the common agricultural products, and do their best upon soils containing from five to eight per cent of organic matter.

STOCKBRIDGE (p. 127).

The ammonia thus resulting from putrid fermentation undergoes a further decomposition known as nitrification, resulting like the original putrefaction from the action of oxidizing microbes through the activity of which ammonia becomes transformed into nitric acid."

O'BRINE (p. 5).

This ammonia undergoes a further decomposition called *nitrification*, resulting, like the original putrefaction, from the action of oxidizing *microbes*, and changes the ammonia into nitric acid.

STOCKBRIDGE (p. 124).

"Of the entire weight of all plants not more than five per cent in any case is of soil, or mineral, origin; the remaining ninety-five per cent is wholly of atmospheric origin; most of which becomes added to the soil-mass on the death and decomposition of the plants."

O'BRINE (p. 5).

Of the total weight of the plants, about five per cent is of soil or mineral origin; the remaining ninety-five per cent is wholly of atmospheric origin; most of which becomes added to the soil mass on the death and decomposition of the plants.

STOCKBRIDGE (p. 154).

"And it is a fully accepted fact that, other things being equal, that soil is invariably most fertile which exists in the finest state of division, whose particles are the smallest."

O'BRINE (p. 7).

It is a fully accepted fact that, other things being equal, soil is *invariably* most fertile which exists in the finest state of division, whose particles are the smallest.

STOCKBRIDGE (p. 157).

"Liebenberg has shown, however, that the action in the soil may be either upwards or downwards according as the atmosphere is dry or supplies soil-saturating rain."

O'BRINE (p. 8).

Liebenberg has shown that this movement may be either upwards or downwards, according as the atmosphere is dry or supplies soil-saturating rain.

Before deciding to request the publication of this statement of facts I requested an explanation of Prof. O'Brine, in response to

which request he asserts that the material published over his own name was furnished him in the form of notes by a late colleague who has unfortunately died since the publication of the bulletin in question. These notes were furnished, it is claimed, with the assertion that they were "recent," but that the abstractor had forgotten their source, but supposed that such things were "common property."

I desire to offer no opinion as to the probabilities of such an occurrence, and distinctly disavow all intention of publishing any aspersion concerning a fellow worker. My only claim is that the material published in the October bulletin of the Colorado station was originally mine, and that it was utilized without credit either to myself or the alleged abstractor of the notes in question.

Further, that the order in which the statements made occur is identical with the order in which they occur in the pages of my work alluded to, and that, as is demonstrated in the last extract made, even where my own language is not used verbatim without credit, the *order followed* and the *subject matter presented* are identical with my own. For instance: in discussing the conditions modifying soil temperatures, paragraphs with topic titles were given to "Vegetation," "Condition of Atmosphere," "Angle of Contact," and "Electricity" in exactly the order followed in the last extract made.

Moreover, that frequently tables are given with the identical words of introduction used by myself, although so far as I know the original exists only in German, and the translation and the authority were originally published by myself, though the bulletin alluded to refers to the original in, however, the identical language used by myself as translator.

I desire to make no comments; indeed, none seem to be required. I simply desire publication of the actual facts as a simple matter of justice to myself and to the numerous scientific workers who must be interested parties. H. E. STOCKBRIDGE.

Queries.

49. INFLUENZA. — Has epidemic influenza been known to cross the equatorial line, in either direction? E. W. GREENOUGH.

Sunbury, Pa., Jan. 13.

INDUSTRIAL NOTES.

A New Electric Motor.

A NEW electric motor just brought out by the United States Electric Lighting Company is shown in the accompanying illustrations. It is manufactured in several sizes, from an eighth of a

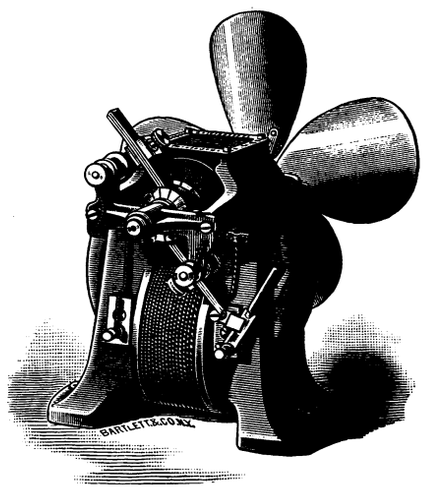

FIG. 1.

horse-power up to twenty horse-power, and wound for any potential up to five hundred volts. In designing these motors, the aim has been to give a very low armature resistance combined with great strength of field, thus securing high efficiency in a motor of comparatively small size. The relative magnetic intensity of field and armature in these motors is so proportioned that the brushes require a minimum of attention, sparking under any condition of load being eliminated. A great mechanical advantage in their design

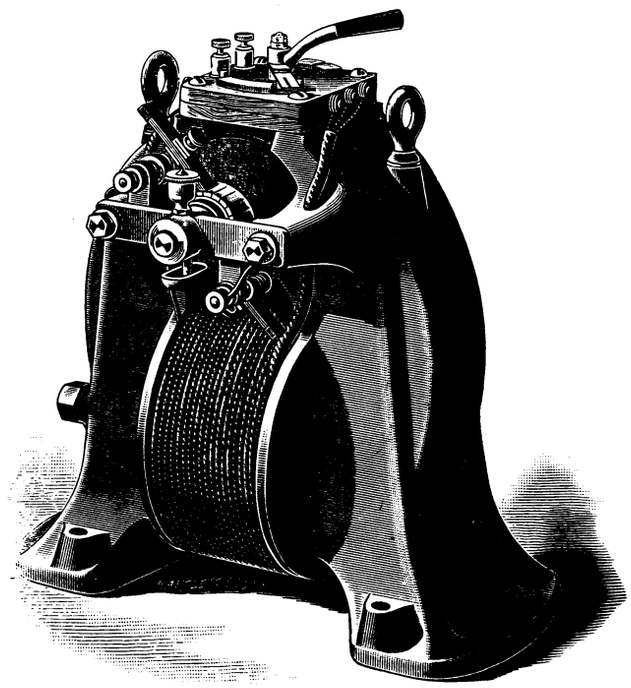

FIG. 2.

is that all armature wires and bands are thoroughly protected from injury by the arrangement of the pole-pieces. The starting device for throwing the motor in or out of circuit is on the motor itself,

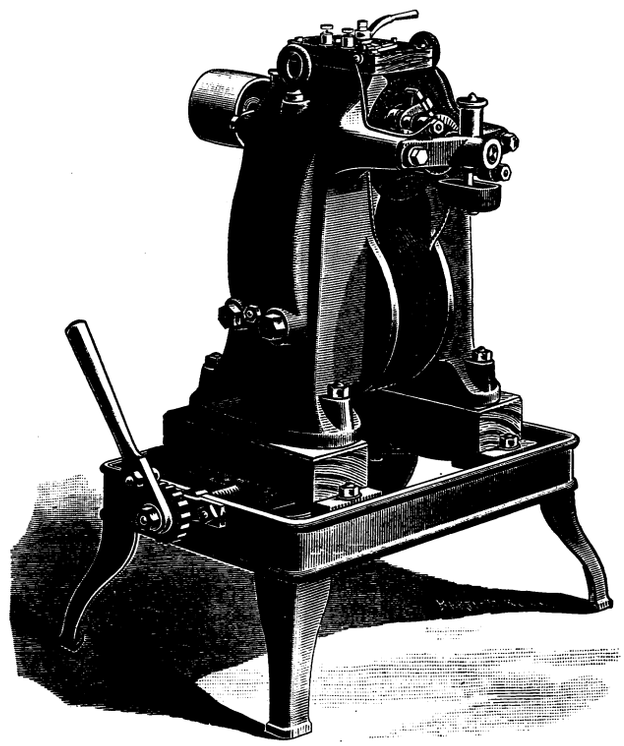

FIG. 3.

resistance boxes being dispensed with. For motors taking a potential above 220 volts a special starting device is used. Fig. 1 shows the motor with fan attachment; Fig. 2 is a motor of larger size, and Fig. 3 shows a motor adjustably mounted on a base.