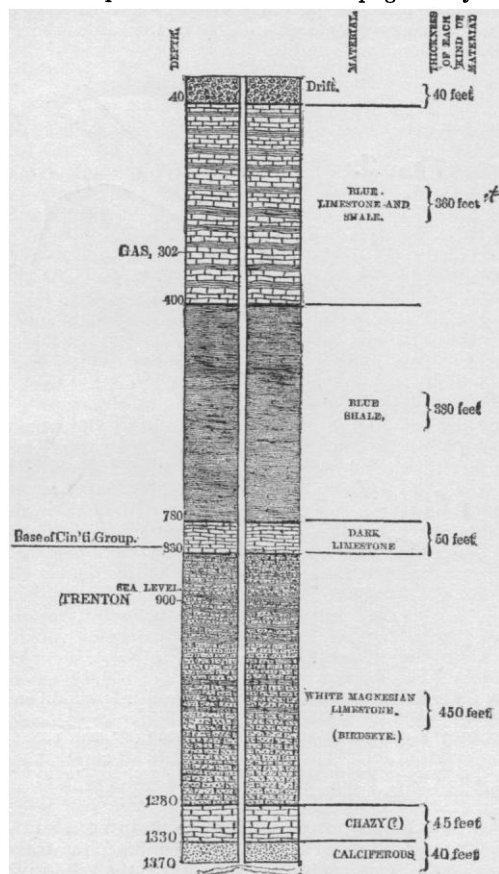


Well drilled for gas at Oxford, O.

The accompanying cut represents a section of the strata passed through in a well recently bored in Oxford, O., for the purpose of finding oil or natural gas. A very full series of samples, eighty-seven in number, was saved as the drilling proceeded, and by their means it is possible to give an accurate account of the strata passed through. The drill penetrated the soil and drift to a depth of from forty to fifty feet. Immediately below, the bed-rock was struck. This consisted of layers of solid blue limestone, interstratified with beds of indurated clay or shale at various depths. The rock came up generally in



SECTION OF STRATA PENETRATED BY THE OXFORD GAS AND OIL COMPANY'S WELL.

small, angular fragments, often of the size of peas, sometimes larger, but always recognizable as the true blue limestone of the Cincinnati group. At a depth of 302 feet a small vein of gas was struck. When lighted, the flame was ten or twelve feet high, but it soon went out, accumulating in small quantities, and being lighted from time to time afterwards.

The limestone continued to the depth of 400 feet, and was succeeded by a bed of exceedingly compact, blue shale. This showed no change in character for 380 feet, and it seems to be the equivalent of the Eden shales of the Ohio geological survey. Below

this, and at a depth of about 780 feet, there was struck a stratum of hard, dark, almost black limestone, which was penetrated but slowly, the drill making only three feet in two and one-quarter hours. The fragments came to the surface very finely ground up, the pieces seldom as large as wheat-grains. This rock continued for a depth of fifty feet, and it marks the dividing-line between the Cincinnati group and the Trenton. This is the only stratum which can be referred to the Utica slate; and, if it is this, it is 250 feet less in thickness than at Findlay and other places.

The rock immediately below this stratum, reached at 830 feet, is a whitish limestone, evidently foreign to the surface of Ohio. It may be the equivalent of the bird's-eye limestone of New York, as certain specimens show the 'bird's-eye' feature with greater or less distinctness. The rock was much the same, whitish, and containing appreciable quantities of magnesia, down to 1,100 feet. Here it became darker, was more compact, and this continued to 1,280 feet, being alternately lighter and darker in bands. Below 1,280 feet there came another decided change. It was a change from very light to very dark limestone, coarser, with at times a greenish, then a bluish tinge. Some samples had a strong smell of oil, and this could also be readily seen floating on the water. It was also magnesian. This possibly represents the Chazy of New York. At 1,325 feet the drillings were coarse, blue and white, and argillaceous. At 1,330 it was a coarse white rock, but arenaceous; so much so, that the drillers said 'sand!' Each successive drilling, at 1,340, 1,345, 1,350, 1,355, 1,360, 1,365, was finer than before; and when the last depth had been reached, and the drill was withdrawn for pumping, the rope showed the presence of water in what had previously been a dry hole. Soon a strong smell of sulphuretted hydrogen told the story that sulphur-water had been struck, and the drilling was at an end. The last forty feet passed through is in all likelihood the upper portion of the calciferous sand-rock of New York.

The following table represents the formations passed through in the well, with their respective thicknesses:—

Drift.....	40 feet.
Cincinnati group.....	790 "
Trenton.....	495 "
Calciferous.....	40 "

Total..... 1,365 feet.

Jos. F. JAMES.

Oxford, O., June 6.

Another muscle in birds of taxonomic value.

Whatever laborers in ornithotomy in past times may have done, it is certainly chiefly due to the late and talented British anatomist, Garrod, that certain muscles, and groups of muscles, found to be present or absent in natural divisions of birds, were pressed into service with telling effect in the taxonomy of the class.

There are three principal muscles in the pectoral limb of a bird, or rather in one that possesses them all, which Garrod, by dwelling upon their modifications, their constancy, their various modes of origin and insertion, throughout the group, brought into classificatory play: these are the tensor patagii longus, the tensor patagii brevis, and the 'bicipital slip to the patagium.' He referred to no others especially, in this patagial region, and these three are now sufficiently well known to anatomists to ob-