

Astronomical Notes.

OBSERVATORY OF VASSAR COLLEGE.

The computations in the following notes are by students of Vassar College. Although only approximate, they will enable the ordinary observer to find the planets.

M. M.

POSITIONS OF THE PLANETS FOR APRIL, 1879.

Mercury.

Mercury can be found in the first week of April by its nearness to Venus. It sets at 8 P.M. on the 1st, a little south of the point at which Venus sets. Mercury is stationary, referred to the stars, on April 6; it then has a retrograde motion until the 29th. As the motion of Venus is direct, the two planets separate rapidly, and on the 30th Mercury sets at 5h. 10m. P. M.

Venus.

Venus is coming nearer to us, and setting later. On April 1 Venus rises at 6h. 55m. A.M., and sets at 8h. 43m. P.M., more than two hours after the sun. On April 30 Venus rises at 6h. 44m. A.M., and sets at 9h. 52m. P.M. An ordinary glass will show that the disk of Venus is not wholly illuminated, and the change of phase can be watched from night to night. The bright star some degrees south of Venus on April 25, is Aldebaran.

Mars.

Mars is not likely to be seen by the ordinary observer. It rises on April 1 at 3h. 24m. A.M., about two hours before the sun, and sets at 1h. 3m. P.M., on the 30th. Mars rises after the sun and sets at noon; it is not possibly seen.

Jupiter.

Jupiter, the largest, and perhaps the most interesting, of the planets, is now coming into view in the morning. On April 1 Jupiter rises at 4h. 19m. A.M., and sets at 2h. 54m. P.M. On April 30 Jupiter rises at 2h. 39m. A.M., and sets at 1h. 28m. P.M. Although Jupiter is nearly 10° south of the celestial equator, on April 30 it rises more than two hours before the sun, and can be easily recognized.

Saturn.

On April 1 Saturn rises nearly with the sun, and sets before the sun at 5h. 49m. P.M. On the 30th Saturn rises at 4h. A.M., nearly 2° north of the celestial equator, and can perhaps be seen before the sun rises.

Uranus.

Uranus is the only planet, more distant from the sun than the earth is, which can be found in the evening.

On April 1 Uranus rises at 2h. 48m. P.M., comes to the meridian at 9h. 32m. P.M., and sets at 4h. 15m. A.M. of the next day. On April 30 Uranus rises at 0h. 51m. P.M., comes to the meridian at 7h. 32m. P.M., and sets at 2h. 20m. the next morning.

Uranus is south of the bright star Regulus on April 30, 23°, and 2° east of the star.

It may be found, when on the meridian, by looking east of Regulus, and as far from the star as four diameters of the moon.

Brorsen's Comet.

Brorsen's comet, which was first seen in 1846, and was perceived to have a period of five and a half years, has returned this year, having been seen by the director of the observatory at Arcetri, Florence.

An ephemeris of the comet, published in the *Astronomische Nachrichten*, gives its place on March 21, as nearly that of the star *Xi Ceti*. The comet should be looked for in March among the stars of *Aries*, but its apparent motion northward is very rapid, and in April it should be looked for among the stars of *Perseus*.

Brorsen's comet is not yet visible to the eye, but can be readily found with an ordinary telescope.

It appears as a hazy star of the seventh magnitude, throwing off a short train. It is increasing in brightness and coming into better position, as it sets later in the evening.

Although at this time near Venus, its motion among the stars is so much more rapid than that of the planet that it will soon be much further north. Following the ephemeris of Schulze, the comet will be more than 7° north of Venus April 1st, and on April 15th about 20° north of the planet and among the stars of *Perseus*.

MISCELLANEOUS INVENTIONS.

Mr. Jotham W. Wakeman, of Jersey City, N. J., has devised a school writing book, with sliding or adjustable copy slips, which may be moved downward as the writing progresses, the copy thereby being kept before the scholar's eye.

An improved tablet for blank paper, letter heads, bill heads, sheet music, letters, etc., has been patented by Mr. Bredell C. Murray, of Denison, Texas. Tubes are arranged across the covers where they join the back, and are provided with springs connected by cords, which draw the tubes together so as to clasp the edges of the papers.

A band bracelet, made of a single thickness of metal, having at its edges raised ornamental work and projecting flanges, which are made higher than the ornamental work to protect it, has been patented by Mr. Charles Hein, of Corona, N. Y.

Mr. John G. Klett, of Brooklyn, N. Y., has invented an improved pocketbook, the back of which consists of a channeled flange or rim, whose ends are pivoted to the sides of the frame thus dispensing with hinges at the back and giving great strength and durability to the book.

Mr. Aaron C. Vaughan, of Shane's Crossing, O., has patented a nut lock, consisting of a longitudinally grooved bolt and a nut having one or more radial grooves in its face, and

a groove or locking seat about its edge, and a wire key arranged in the longitudinal groove of the bolt and bent twice at right angles.

An improved machine for cutting off the projecting ends of the pegs of boots has been patented by Mr. R. T. Ellifrit, of Platte City, Mo. The inventor employs a revolving circular saw, whose mandrel turns in bearings in a guard casing that is pivoted to the upper end of an upright hollow standard or stock.

An improved trap for preventing the escape of sewer gas into houses, has been patented by Mr. J. T. Bladen, of Brooklyn, N. Y. It consists of a cover of novel construction, which may be closed so as to thoroughly seal the drain pipe, or it may be opened to permit of the escape of water from the sink. It may be easily applied to any sink, basin, or bath tub.

Mr. Hermann H. Heiser, of Denver, Col., has patented an improved girth iron for ladders, in which the metal loop is provided with strengthening bars, which are arranged with reference to the lacing bar so as to prevent the lacing strap from getting out of position.

An improved lath-sawing machine, patented by Mr. James Little, of Evansville, Ind., is designed to cut, at one operation, a bolt from a slab or plank and saw the bolt into lath of a uniform size. The machine has a series of saws on a vertical mandrel and a corresponding series of spreaders and gauges, and it has a horizontal mandrel carrying a saw which separates the lath from the edge of the bolt.

Messrs. J. J. Christie and J. Overton, of Henderson, Tenn., have patented an improved wrench and crimper for nut washers, which consists of a hooked arm which is pivoted to a wrench. The hook is placed under the edge of a washer, and the wrench being placed on an adjacent nut and turned, binds the washer.

An improved type-writing machine, patented by Antonio Michela, of Turin, Italy, may be used to print stenographic or phonetic signs. It is also capable of recording syllables. The machine cannot well be described without engravings.

Mr. Pedro F. Fernandez, of San Juan, Porto Rico, has invented an attachment for sewing machines for soaping or waxing the thread as it passes to the needle. The invention consists in a clamp for holding a small cylinder of wax or soap, and having a binding screw for securing it to the needle arm or bar.

NEW AUTOMATIC SIPHON.

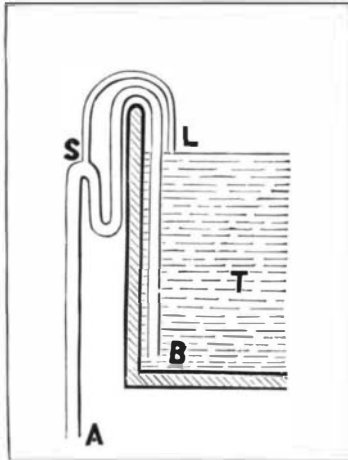
In a communication to the Edinburgh Photographic Society Dr. William Taylor gives the following description of an apparatus designed to serve as an overflow pipe to tanks or other vessels not already fitted with means to that end, and without in any way altering such vessels. It is specially applicable to tanks with a fluctuating supply of water, in which it is necessary to maintain a constant level.

As its name implies, it is self-acting, and while at once carrying off any sudden influx of water, it will not bring the level below a certain fixed line. The excess of water is carried from the bottom of the tank.

Into the tank, T, is passed the waste pipe, A B, of a diameter greater than the feed to tank. This waste pipe is bent into the form shown, with the shoulder, S, about half an inch lower than the level of water required in the tank. On the upper surface of this shoulder, at S, a small hole is made, over which a small tube is fixed. This small tube, S L, is then led over the side of the tank to the constant level required.

Now, when the waste pipe is put into action as a siphon it rapidly carries off the water to the level, L. When it reaches this air is admitted by the small pipe through the orifice at L, and the waste pipe ceases to be a perfect siphon. If, now, a small stream of water flow into the tank the same quantity passes through the partial siphon, A B; but should a rush of water into the tank take place, bringing the water above the level, L, the waste pipe is at once converted into a true siphon, and rapidly brings the level back again.

In the sketch the pipes have been drawn projecting from the tank. This has been done for simplicity; but, of course, in practice these pipes are laid close to the side of the tank.

**The Lawn.**

The man who puts on a frequent little sprinkling of salt or bone dust or superphosphate, or any fertilizer that will add an additional rich green tint to the turf, is always recompensed by securing the most conspicuous grass plat in the neighborhood. The best lawn we ever saw, says an agricultural writer, was occasionally treated to a sprinkling of diluted blood from a slaughter house, just previous to a shower. When the soil is soft, run the roller over; it helps the appearance greatly. The application of a little ground gypsum will also freshen up the grass. But above all, never neglect to run the mowing machine over frequently. Once a week is none too often during a wet season.

Another writer on the treatment of lawns suggests the use of oil of vitriol touched to the heart of the plantain. He says it will kill more surely than digging it out. And if it will exterminate the weed to an inconsiderable extent, it is certainly better than digging it out, which we have tried with discouraging success. We have dug over a lawn till nearly every vestige of green was gone, determined to get rid of the plantain at all hazards, but it invariably got the best of the grass in returning, and it seemed rather to thrive the better for the cultivation it had received by our exterminating process.

Colored Pencils for Glass.

The following formulas for the composition of pencils for sketching on glass, porcelain, etc., are those used at the factory of A. W. Faber, of Stein, near Nürnberg, Germany:

1.—BLACK.

Lampblack.....	10 parts.
White wax.....	40 "
Tallow.....	10 "

2.—WHITE.

Zinc white.....	40 parts.
White wax.....	20 "
Tallow.....	10 "

3.—LIGHT BLUE.

Prussian blue.....	10 parts.
White wax.....	20 "
Tallow.....	10 "

4.—DARK BLUE.

Prussian blue.....	15 parts.
Gum arabic.....	5 "
Tallow.....	10 "

5.—YELLOW.

Chrome yellow.....	10 parts.
Wax.....	20 "
Tallow.....	10 "

The colors are mixed with the fats in warmed vessels, levigated with the same, and are then allowed to cool until they have acquired the proper consistency for being transferred to the presses. In these the mass is treated and shaped similarly as the graphite in the presses for ordinary pencils.—*Deutsche Gerber Zeitung*.

SUPREME COURT DECISION.

OWNERSHIP OF THE SECOND TERM OF AN EXTENDED PATENT.

In the appeal of George Hendrie vs. Thomas Sayles the decree of the court below was confirmed for the following reasons: From the papers in this case it appears that prior to the granting of the patent the inventors conveyed and set over all the right, title, and interest whatever which they had, or by letters patent would be entitled to have and possess, in the described invention, to an assignee, who subsequently, after the patent was granted, assigned to the complainant "all his right, title, interest, and claim whatsoever which he then had or may have in and to said invention and patent, and any extension thereof that may hereafter be granted," with certain specific exceptions not material to this investigation. Before the term of the original patent expired application was made for an extension, which was granted in due form for seven years.

Controversy having arisen between these parties, the complainant instituted the present suit against the respondent for infringing his right under the extended term. Service having been made, respondent demurred that the complainant had not in and by his bill of complaint made any such title in himself to the extended term of the patent as would entitle him to relief. Hearing was had, and the court overruled the demurrer and entered a decree in favor of the complainant, the respondent electing to stand upon his demurrer. Prompt appeal was taken to the Supreme Court by the respondent, who maintains, as in the court below, that the bill of complaint showed no legal title to the extended term in the complainant.

The Supreme Court holds that, "when the patentee assigns the patent to a purchaser, the assignee acquires only the exclusive right during the term for which the patent was granted, unless the assignment contains words showing that the parties intended that the instrument should be more comprehensive, and include the extended term in case an extension should be granted. During the term for which the patent is granted the assignee of all the right of the patentee in the same may assign or convey the patent for the residue of the term granted, or he may continue to make, use, and vend the patented improvement, but his title to the invention terminates when the term of the patent expires."

"Apt words are, therefore, required where the conveyance is of an existing patent to show that the conveyance includes more than the term specified in the patent; but where the conveyance is of the invention, whether before or after the patent is obtained, the rule is otherwise, unless there is something in the invention to indicate a different intention, the rule being that a conveyance of a described invention carries with it all the incidents, and all the authorities concur in the inchoate right to obtain a renewal or extension of the patent is as much an incident of the invention as the inchoate right to obtain the original patent; and if so, it follows that both are included in the instrument which conveys the described invention, without limitation or qualification. *Emmons vs. Sladden*, 9 Off. Gaz., 354; *Gayler vs. Wilder*, 10 How., 493; *Clum vs. Brewer*, 2 Cart. C. C., 520; *Carnan vs. Bowles*, 2 Brown Ch., 84.

"Viewed in the light of these suggestions, the court is of

opinion that the entire interest in the invention passed from the inventors to the assignor of the complainant by the instrument of assignment which they executed to him before the patent was granted, and that the patent was properly issued in the name of their assignee. They, the inventors, do not controvert the exclusive right of the complainant, nor does the respondent deny that the terms of the assignment from the assignee of the inventors to the complainant are amply sufficient to convey to him all that he claims if his assignor at the time held the title to obtain the extended term; and the court being of opinion that the assignor of the complainant did hold that right, it follows that there is no error in the record."

AN IMPROVED WASHING MACHINE.

The accompanying engraving represents an improved washing machine recently patented by Mr. Erasmus L. Keys, of Muncie, Ind. It has been the aim of the inventor, in devising this machine, to imitate as nearly as possible the operation of rubbing the clothes by hand on an ordinary washboard. This is done by passing the clothes between ribbed rollers, B D, under pressure given to the two upper rollers by the spring, f, and at the same time giving the upper rollers a longitudinal motion by means of cams, I, at the ends of the larger roller, B. The relative position of the three rollers is clearly shown in Fig. 2. A guard, G, at each end of the machine prevents the clothes from coming into contact with the metallic parts of the machine.

The upper rollers yield to accommodate clothes of varying thickness without interfering with this longitudinal motion. The machine, although very simple, appears to be made on the right principle.

DE KAY'S SNAKE.

BY C. FEW SEISS.

It is impossible to write the true life history of an animal from only a lifeless specimen. Buffon attempted it, but how often has he committed grave errors by so doing! Thus, in one instance, he says, while examining the skin and head of a black skimmer (*Rhynchops nigra*): "We see from its bill that life was to such a formed bird a burden, and that capturing and devouring food was difficult, if not painful." On the contrary, its bill is admirably fitted for its mode of life. Dr. Holbrook, in his "North American Herpetology," says: The De Kay snake "feeds on various insects, as crickets, grasshoppers, etc." Now it is probable, he, in examining his specimen, saw it was almost too small to capture and swallow a mammal, bird, frog, or toad, and as it was not a water snake, tadpoles and fishes were out of consideration, and hence came then to the conclusion that it must be insectivorous. My observations have proved this assertion to be an error. I have had many of these snakes in captivity, from a month to over a year. I never saw one of them even attempt to catch or eat a grasshopper, beetle, bug, fly, moth, frog, or toad, but from the first time until now I never saw one refuse to seize and swallow an earthworm *Lumbricus*, unless the snake was sick and blind, previous to casting its skin. This was not only the case with individuals taken in Pennsylvania, but a living specimen sent to me from Massachusetts had the same voracious habits, and refused to eat all insects placed in its cage. If the worm seized happened to be small, the snake would double the worm, and swallow both parts at the same time.

If the worm was large, the snake worked and maneuvered until he could seize it by the head or tail. When the worm was swallowed head foremost, the snake had little to do but permit the worm to creep down the ophidian gullet, of its own free will. And this it could do more rapidly than the snake could have done in the usual manner of drawing it in by the backward and forward motion of its jaws. Instinct seemed to tell the worm that the snake's gullet was a pleasant hole for retreat; but alas for *Lumbricus*! he little dreamed it would be the hole he should occupy—his grave.

I have discovered that young garter snakes (*Eutania*) feed

entirely upon earthworms, and not upon insects, as some have asserted. I have seen *Eutania* the day after birth voraciously attack and devour earthworms, and I am of the opinion that many other species of our land serpents while immature feed wholly upon these common annelids.

De Kay's snake is generally crepuscular in habits, and rarely quits its retreat during midday, unless the weather be cloudy or rainy, when it moves about in search of worms. In captivity, however, I have, on cold days, several times seen it leave its hiding place to bask for hours at a time in the sunshine. At such times it would throw itself into a coil, and bury its head either under the pebbles or beneath the folds of its body, to shield its eyes from the rays of the sun, which seemed unpleasant. The *Storeria Dekayi* is of a pale brown color above, with a yellowish white or clay colored dorsal band, bordered by a dotted line on each side;

vert worthless insects or waste water grasses into human food. The trout or bass from a farmer's pond costs him nothing but the trouble of catching, and compares in excellence on his table with his best poultry, to say nothing of pork that has been fed twice a day for months. The only loss of time or labor is in the catching, and to reduce that it is only necessary to make the fish abundant.

Mr. Roosevelt did not advise farmers, except in rare cases where they have unusual facilities, to undertake the artificial hatching of fish, but he urged them to utilize such ponds and streams as they can without labor or expense. This might not yield the greatest possible profit, but it would bring fair returns, and in no wise interfere with other occupations.

"It would be irksome," he said, "for the farmer to watch over the incubation of trout eggs, which require months to produce the young; nor is it necessary, so long as the States

take this labor upon themselves and furnish, to all who need them, trout fry already hatched. If gentlemen owning suitable streams or ponds desire to stock them with trout they have only to apply at the State hatching-house, and, where a number combine, the expense to each is trifling. After the trout fry are placed in their proper element—and it must not be forgotten that only cold spring-water is suited to them—they will take care of themselves. In the course of a year or two they will have attained an edible size and can then be caught. Nothing is simpler than this, and yet how many streams and fine fresh brooks there are that perhaps once abounded with trout which are now wholly depopulated. There is, however, another kind of fish known as the fresh-water bass, which is possibly even more valuable than the trout for the farmer's use. It is not so exact-

ing in the character of the water in which it will live, and will grow more rapidly; more important still, it needs no culture or care whatever, or any time.

"The parents, which are fairly prolific, lay their eggs in a sort of nest and watch over them till they are hatched. Bass have never failed to increase rapidly where they have been introduced, and they are suited to almost any pond. These are especially the fish to be used where water farming is to be combined with land farming in the simplest and easiest way. Nothing is required but to place a few pair of mature fish, which can be easily transported in any water they are expected to populate, and they will attend to the rest themselves. They can hold their own with any other species, even against the dreaded pickerel; they increase rapidly and grow quickly, and as human food they are excellent."

The Poison of Serpents.

Some interesting observations have recently been made on

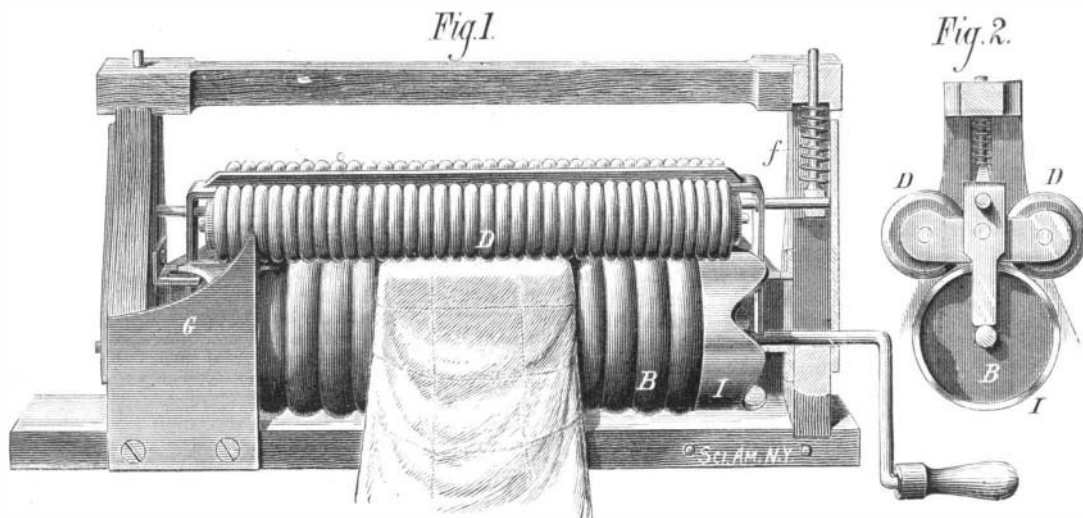
the poison of serpents by M. Lacerda, in the physiological laboratory of the National Museum, at Rio Janeiro, and which have led the experimenter to conclude that, in some cases at least, the venom contains an organized ferment, presenting some analogies to bacteria. M. Lacerda states that a drop of poison removed from a rattlesnake under the influence of chloroform, and examined with the aid of the microscope, appears as "a species of filamentous protoplasmic matter, consisting of a cellular aggregation disposed in arborescent form resembling certainly copods."

These cells are fully described in a paper read before the French Academy of Sciences. Similar phenomena were observed in the blood of animals that had been bitten by a rattlesnake, and it was found that such blood was capable of setting up the same change in the blood of other

animals when injected hypodermically, and that this change was always followed by the death of the animal.

The Directorship of the National Surveys.

It was announced, March 11, that the Directorship of the National Surveys is to be given to Clarence King. The appointment will give general satisfaction. Mr. King is not only a most capable man for the place, but his relations to other laborers in the same field hitherto have been such as to give promise of harmonious action in every part of the consolidated surveys.



KEY'S WASHING MACHINE.

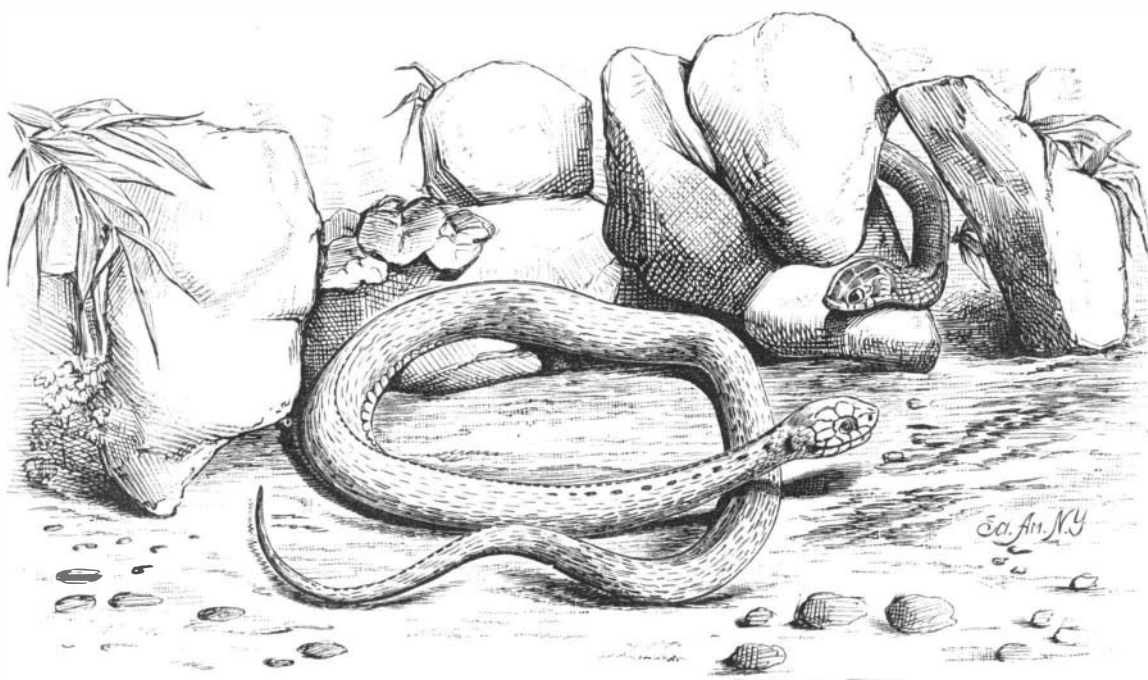
beneath, flesh-color, or soiled yellowish-white. Its ordinary length is about one foot.

The other species of the genus, the *S. occipitamaculata*, is salmon red (in life) beneath, and has the head generally marked with three pale spots, hence its name.

Some have considered these serpents to be merely immature striped snakes (*Eutania*), but let it be distinctly understood that the majority of serpents come into the world marked and colored like their parents.

Trout and Bass Farming.

The addition of our popular food supply during recent years, by the restocking of exhausted streams and lakes, has been of great public advantage. There still remain countless small brooks and ponds capable of being made useful and profitable with very little trouble. In a paper read before the New York Farmers' Club, by Mr. Robert B. Roosevelt, one of the State Fish Commissioners, emphasis was



DE KAY'S SNAKE.

laid upon the fact that in many places inland, and not accessible to the sea, that great storehouse of fish food, there is difficulty in obtaining even the commonest sorts of fish. If the farmer can add to his usual crops a crop of fish he will be benefiting his neighbors as well as himself. To do so may seem to many at first glance a difficult operation, but not half as much so as making the broad acres laugh with a harvest seems to the inexperienced. Fish farming has its rules and limits, precisely as land farming has, but is simpler and far more productive. Once hatched the fish provide for themselves; they need no food or care, they con-