

to return to the place whence it was taken, it must needs *make haste back*." I wish to contribute an anecdote of which the hero did not make haste back, and which seems to me to confirm rather the theory already suggested in this correspondence, namely, of a sense of polarity or *orientation* possessed by so many of the lower animals both domesticated and wild. Last summer I was at North Bridgewater, Mass., a shoe-making town about twenty miles south of Boston. At the railroad station I remarked an intelligent dog, whose owner told me, with a good deal of feeling, that he had sold the animal some time previously to be taken to Somerville—a suburb adjoining Boston on the north-west, therefore distant from North Bridgewater at least twenty miles. The dog was carried thither in a closed box-car, probably making a change at Boston, where the railroad terminates. For some two or three weeks the dog made himself at home in his new premises as if perfectly contented, when suddenly he disappeared, and turned up again not at North Bridgewater, the home of his former owner, but at Bridgewater, a mile or two further south, where he had been raised, at the house of that owner's father; evidently not meaning to be sold again.

I am not sure that it is quite germane to this discussion to call attention to the fact pointed out by the late George Catlin in his "Life amongst the Indians" (p. 96), "that the wild horse, the deer, the elk, and other animals, never run in a straight line: they always make a curve in their running, and generally (but not always) to the left."

"I never have forgotten one of the first lessons that I had from my dear friend Darrow, in deer-stalking in the forest. 'George,' said he, 'when a deer gets up, if the ground is level, never follow him, but turn to the left, and you will be sure to meet him; he always runs in a curve, and when he stops he is always watching his back track.' But *man* 'bends his course;' man, lost in the wilderness or on the prairies, travels in a curve, and always bends his curve to the *left*; why this?"

Of the latter fact Mr. Catlin gives an illustration drawn from his own experience, and adds:

"On arriving at the Sioux village, and relating our singular adventure, the Indians all laughed at us very heartily, and all the chiefs united in assuring me that whenever a man is lost on the prairies he travels in a circle; and also that he invariably turns to the *left*; of which singular fact I have become doubly convinced by subsequent proofs similar to the one mentioned."

New York, April 8

N. Y.

UNITED STATES SIGNAL SERVICE

THE United States Signal Service Bureau has rapidly risen to great and deserved importance. The chief officer, General Albert J. Meyer, is a physician by education, who, during the civil war, was placed at the head of the Signal Corps. In that position he rendered great service, and developed a remarkably complete system of signals. The service now consists of a school of instruction, a central office at Washington, and stations over the country at such points as will enable the observers to note accurately the varying conditions of temperature and the progress of storms. The school is at Fort Whipple, Virginia. "A principal duty of the school has been the drill and instruction of the Observer-Sergeants and the assistant observers for the signal service. In the preparation for these duties each man is required to enlist in the signal detachment at Fort Whipple as a private soldier, and to pass afterwards a preliminary educational examination before he is put under especial instruction. He is then given some knowledge of the theories of meteorology, and is taught the practical use of the various instruments, forms, &c., in vogue at the several stations of observation, while he is practised at the same time in his regular drills of the service. When considered competent he is ordered as an assistant observer to a station where, in addition to perfecting himself in the practical details of the duties at the station, he continues his studies, regularly under the Observer-Sergeant in charge. A service of six months in this capacity renders an assistant eligible as a candidate for promotion. He may then be ordered back to the school to review his studies, and to appear for his final examination before a board of officers appointed for the purpose. Passing this

examination, he is promoted to the grade of observer-sergeant, and is considered competent to take charge of a station. This course has been followed successfully during the past year, and each man's fitness has been clearly determined by this probationary service as assistant before his assignment to a more responsible position.

The central office at Washington is in telegraphic communication with all the stations, and each night reports are received at 11 o'clock, P.M., and the results of the digest are telegraphed to all the principal cities in time for the daily morning papers.

From a detailed report of the operations of each of the established stations it appears that during the year there have been issued and distributed at the different lake, sea-coast, and river ports, and in the inland cities a total number of bulletins, maps, &c., as follows:—

Total number of bulletins	187,617
Total number of maps	203,533
Total number of Press reports	50,878

The accuracy of the predictions of the Bureau as to the weather changes is stated in the report as follows:—"A comparison of the tri-daily forecasts, or 'probabilities,' as they have been styled, with the meteoric condition afterwards reported and, so far as known, has given an average of sixty-nine per cent., as verified up to November 1, 1871. Since that date to the present time (October 1, 1872) the average of verifications has been seventy-six and eight-tenths per cent. If regard be had to those predictions verified, within a few hours after the time for which they were made, this percentage is considerably increased. In view of the deficiency of telegraphic facilities during the year, and the great irregularities of the working, it was not anticipated that these predictions, based as they are upon the tri-daily telegraphic reports, would increase in accuracy. Whatever success has been attained must be considered an indication of what success might be with well organised and full telegraphic facilities."

The number of "cautionary" signals on the inland lakes and on the sea-coast, and their value are thus stated:—"Three hundred and fifty-four cautionary signal orders have been issued during the year, each display of the cautionary signal at any station being considered a separate order. This signal was announced as to be shown 'whenever the winds are expected to be as strong as 25 miles an hour, and continue so for several hours within a radius of 100 miles from the station.' The percentage of the cautionary signals verified by the occurrence within a few hours after the display of the winds described, either at the port at which the signal was exhibited, or within the radius of 100 miles from that port, is estimated to have been about 70 per cent. The instances of signals displayed, reports not verified, are those in which they have not been proven necessary at the station where exhibited. The signal is wholly 'cautionary,' forewarning probable danger. It has been aimed to err on the side of caution. The delays such errors may cause are retrievable—the disasters of shipwreck are not. Since the 1st of July of the present year (1872) thirty-two cautionary signals, forewarning the approach of six different storms, have been displayed at different ports. Of these storms five were destructive, justifying the display of twenty-eight of the signals—one in advance of which four signals were displayed was not considered dangerous."

The operations of the service have been considerably extended by co-operation of the Canadian authorities, and negotiations are in progress designed to furnish signal reports from the West India Islands, and even from Europe.

THE ZOOLOGICAL AND ACCLIMATISATION SOCIETY OF VICTORIA

THE first volume of the Proceedings of this Society, contains upwards of 400 pages, and the prefixed report is altogether very satisfactory. The council of the society

rightly think that Melbourne, from its size and importance, ought to number among its attractions a good zoological collection. If they succeed in obtaining a sufficiently large number of subscribers, they intend, in the first instance, to form as complete a collection as possible of the fauna of Australia, and thereafter, when in a position to do so, to add those of other countries. The Government, we are glad to see, very liberally placed the sum of 1,000*l.* on the estimate for the past financial year.

A considerable amount of success attended the operations of the society during the year previous to March last. A number of pheasants of the silver (*Phaseanus nycthemerus*) and common (*Phaseanus colchicus*) varieties, had been reared, and were to be liberated in suitable places. Upwards of 150 guinea-fowl had been placed in various secluded spots, in forests far removed from settlement, where it is confidently hoped they will increase, and in a few years yield both food and sport.

About 3,500 live trout, hatched at the society's establishment at the Royal Park, Melbourne, had, during the previous season, been placed in different streams. The deer which have been liberated in many parts of the colony are spreading and increasing rapidly, and the society possess a fine collection of six varieties in their grounds at the Royal Park. The valuable stock of Angora goats and the ostriches belonging to the society are thriving and increasing.

Although the society is anxious to encourage and promote sericulture, they find it difficult to advance this industry in a really practical manner so as to be of benefit to the colony. Baron von Mueller has, however, as well as the society, supplied many parts of the colony with white mulberry plants, and when they come into bearing, silk growing will, they hope, become an important industry of the colony.

On account of the services rendered to pisciculture by Sir Robert Officer and Mr. Morton Allpart, of Tasmania, the society have awarded to both these gentlemen their silver medal; their bronze medal has been awarded to Captain Babot, of the *Hydrastes*, for his enterprise in bringing out sea-turtle.

In conclusion, the council are glad to state that the condition of the society is sound and prosperous, and they only require more liberal co-operation from the public to enable them to produce great results in the cause of acclimatisation. We sincerely hope the Australian public will see it to be to their own interest to respond liberally to the desire of the society for assistance in carrying out their benevolent work.

The bulk of the volume is occupied by two papers. The first is a valuable monograph on the "Ichthyology of Australia," by Count F. de Castelnau, in which he gives an account of the different sorts obtainable in the Melbourne fish market: their number is 142. In the introduction the author speaks with great admiration of Dr. Günther's Catalogue of the Fishes in the British Museum, from which he has continually to quote; further on, he criticises that author's views on the distribution of fishes. He also thinks that the learned doctor is too severely condemnatory of the imperfections of his scientific comrades. The second paper is a list by Baron F. v. Mueller of "Select plants readily eligible for Victorian industrial culture."

NEW FRENCH INSTITUTION FOR THE EXPERIMENTAL SCIENCES

AMID all her political turmoil and strife it seems to us a hopeful sign of the real progress of France that she has citizens with energy, enterprise, and enlightenment enough to undertake and carry out a scheme of the magnitude and importance of the one about to be realised at Lyons. It is to be exclusively devoted to scientific research, and the *Revue Scientifique* thinks it

deserves to be classed with the richest establishments of a similar kind in England, Germany, and Paris.

For more than a year, it seems, the municipal administrators of Lyons have had it under consideration to form laboratories of physiology and experimental medicine, provided with all the most modern and most approved means of investigation. To settle the plan of such an institution, the municipality nominated a Commission of scientific men, consisting of M.M. Ollier, Perroud, and Tripier. This Commission has given in its report, and the following is the scheme it suggests with regard to the biological sciences alone:—

1. A great central laboratory, equipped for the operations and observations which are required in the experimental study of the physiological and pathological phenomena of the animal economy. In it will be collected and methodically arranged all the instrumental apparatus commonly required for such observations and experiments, especially the registering apparatus.

2. A central hall or store-house of apparatus. This will be the dépôt for apparatus and instruments not in daily use, and which are used only in certain circumstances.

3. A laboratory of biological chemistry.

4. A laboratory of biological physics.

5. A laboratory of histology.

6. A room for geological researches relative to the study of parasites and parasitical diseases, including those of the silkworm.

7. A room for autopsies.

8. A room for minute dissections and for the mounting of specimens intended to be preserved.

9. A workshop for construction and repairs, in which will also be set agoing the moving forces intended to work the apparatus.

10. A cabinet of specimens.

- 11 and 12. A room of design and a small photographic studio.

13. A library.

14. A hall for meetings and lectures.

15. Places for keeping animals.

16. A conservatory and enclosure for researches in vegetable physiology.

17. General offices, houses for the director and assistants, for fuel, water, &c.

The *personnel* comprehends a director and his assistant, a librarian, who will also see to the publication of the works of the establishment, three assistants, one for operations and autopsies, the second for work in biological physics and chemistry, and the third for microscopic studies and work in experimental zoology; finally workmen, laboratory attendants, concierge, groom, &c.

These laboratories are intended for the study of all the branches of the biological sciences, from general and comparative physiology to experimental medicine, questions of hygiene and public health, diseases of animals (especially silkworms), and vegetable physiology.

But, although specially intended as an institution for the biological sciences, the Commission has indicated that the programme would be rendered complete by adding a physico-chemical institute for the study of brute nature, so as to unite in the same establishment the whole body of modern experimental sciences.

On March 7 the Maire of Lyons presented to the Municipal Council a report asking that the scheme be immediately proceeded with. The city of Lyons has presented the grounds of the ancient corn-market on the Quai St. Vincent. According to the plans and estimates of the city architect, the buildings will cost 900,000*fr.*, of which this year 330,000*fr.* have been raised. Finally, for the biological sciences alone, a first annual budget of 30,000*fr.* has been set aside.

These figures speak for themselves, and need no comment.