will make an extended trip through the North-west. He will visit Denver, and will probably establish there a station for the breeding of trout, then proceeding to the Columbia River, where he will investigate the nature of the protection afforded by the State of Oregon and Washington Territory to its fisheries. If his investigations are satisfactory, he will take immediate steps toward the establishment of several propagating and distributing stations along this river.

— The following schedule shows the location of the vessels of the United States Coast Survey and the officers ordered to them: the 'Bache' and the 'Eagre' are continuing the hydrographic work on the approaches to Vineyard Sound, Mass.; naval cadets G. R. Evans and H. A. Bispham have been ordered to the 'Eagre;' naval cadet G. R. Slocum and ensign J. H. Oliver have been assigned to the 'McArthur,' now working off the coast of Washington Territory; naval cadets C. S. Stansworth and J. E. Shindel have been ordered to the 'Blake,' Long Island Sound; ensigns W. B. Fletcher and M. Johnson, and naval cadet Joseph Strauss, have been detached from the 'Endeavor,' and ordered to the 'Gedney' off the coast of Maine; naval cadet Robert L. Russell has been assigned to the 'Scorcesby' on the coast of North Carolina; Lieut.-Commander W. H. Brownson, United States hydrographic inspector, is now in Portsmouth, inspecting the new launch building at that place for the Coast Survey.

— The increasing interest which is felt in anthropological science is shown by the number of treatises now in course of preparation by eminent writers on different branches of this science. The Marquis of Nadaillac has in hand a work to be entitled 'Mœurs et Monuments des Temps Préhistoriques.' Professor de Quatrefages is busy with the second part of his 'Introduction to the Study of the Human Races.' This will be followed by a volume on the black races, by Dr. Hamy; by one on the yellow races, by J. Montano; and by a third on the red races, by Lucien Biart. Prof. G. J. Romanes is engaged on a work on mental evolution in man, and Mr. C. Staniland Wake is preparing one on the law of marriage. Mr. Gladstone's forthcoming volume on the greater gods of Olympos is shown, by the portions already published, to have an important scientific as well as literary character.

— A geological survey has recently been established in the State of Arkansas, and Mr. John C. Branner has been appointed director. The prime object of the Legislature was to develop the economic resources of the State; and no provision has been made for work in botany or zoölogy. The annual appropriation is ten thousand dollars.

— Oliver P. Jenkins, M.A., M.S., professor of biology in De Pauw University, and Barton W. Evermann, M.S., professor of natural science in the Indiana State Normal School, have gone to Guaymas, Mex., on a zoölogical collecting-trip for the museums of De Pauw University, the Indiana State Normal School, and the Indiana University.

— Dr. Charles Rau, curator of the archæological department of the National Museum at Washington, died a few days ago at Philadelphia. The excellent arrangement of the large prehistoric collections at Washington is due to the deceased, who devoted most of his time and work to their study. His numerous writings on American archæology, contained in the annual reports of the Smithsonian Institution and in foreign and American journals, and his recent work, 'Prehistoric Fishing in Europe and North America,' will always be appreciated by scientists, and secure him a prominent place among American archæologists.

LETTERS TO THE EDITOR.

**** *The attention of scientific men is called to the advantages of the correspondence columns of* SCIENCE *for placing promptly on record brief preliminary notices of their investigations. Twenty copies of the number containing his communication will be furnished free to any correspondent on request.*

The editor will be glad to publish any queries consonant with the character of the journal.

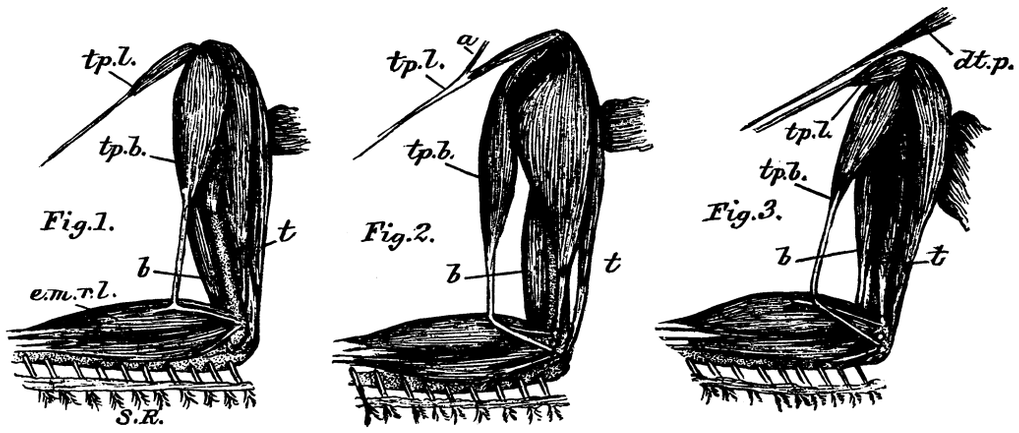
Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.

The Dermo-Tensor Patagii Muscle.

CIRCUMSTANCES over which I had no control were responsible for my forwarding recently the wrong drawings which appeared in my letter to *Science* last month (No. 229). Although the essential part of my communication was perfectly correct, I did not intend to have the patagial muscles in the wing of a toucan stand for those structures in the wing of a passerine bird.

If you will kindly reproduce the three figures I here send you, the matter will be made quite clear.

The lettering of these figures remains the same as in those of my first communication upon this subject. In Fig. 1, we have Garrod's representation of the patagial muscles in the wing of a picarian bird (*Rhamphastos*), wherein the tensor patagii longus is found



pretty much the same as it occurs in the clamatorial birds (*tp. l.*). Fig. 2 is my copy of this anatomist's wing-muscles in a typical passerine bird (*Icterus vulgaris*), and *a* is the stump of the tendon I referred to in my letter in No. 229: it is just possible that it may be intended for the tendon of the dermo-tensor patagii. Lastly, in Fig. 3, I give my own dissection of the patagial muscles in the wing of a typical passerine bird, where *dt. p.* directs attention to the muscle in question. My original description of it in *Science* is correct in all particulars; and the points in regard to it to be briefly noted are, that Garrod apparently overlooked it, and failed to recognize its taxonomical value; that it is characteristic of the true *Passeres;* that it is absent in the *Passeres mesomyodi*, but present in such a form as *Ampelis*, and again absent in the *Caprimulgi*, *Trochili*, and *Cypseli*. To this extent it is an important morphological character.

R. W. SHUFELDT.

Fort Wingate, N.Mex., July 8.

Mean Heights and Body Temperatures of the Eskimo in Hudson Strait.

WITHIN forty miles of North Bluff, Hudson Strait, I should estimate there were sixty families. On such as visited our station, I carried out my determination of their heights; and, by several references to a family who resided alongside of us, I obtained the

temperatures. At first it had been my intention to have made this determination of temperature in the same general way as the other; but, with my indifferent command of the language, at the beginning of the investigation I had the greatest difficulty in making my subjects understand that the operation would result in no bodily harm, which I had no difficulty in understanding they anticipated, by the perspiration oozing from every pore, a look of piteous agony in their faces, and eyes fearfully watching for the first suspicious movement on my part. I naturally concluded that much misery would be saved, without in any way affecting the accuracy of the result, by determination from the individual rather than the mass. The determination was made by placing the bulb of a thermometer well underneath the tongue, and keeping the mouth closed till the mercury column reached its highest and stationary point.

Our mean temperatures were 98.1° F. for winter (December), and 97.7° for summer (July), whilst theirs were 100.2° and 98.4° respectively. I cannot help thinking that part of this large difference is owing to our Eskimo having changed his diet, by the rations we allowed him, towards the summer season.

In determining the mean heights, I considered it advisable to exclude palpable extremes, as my measurements were necessarily from a limited field. The result was a mean height for the men of 5 feet 3.9 inches; for the women, within a very small fraction of 5 feet. W. A. ASHE.

The Observatory, Quebec, July 18.

Chrome considered as a Poison.

IN *Science* (viii. p. 178) is printed an extract from a paper written by Dr. Charles Harrington, and which appeared in the *Boston Medical and Surgical Journal* (cxv. No. 6). Dr. Harrington's paper was an original communication made to the Massachusetts Medical Society, and was read at the annual meeting of June, 1886. The society recommended the paper for publication. It thus appears with the indorsement of two journals and one medical society, all of the very first standing and ability.

This paper concerns itself with chromium considered as a poison to the animal body, and cites four cases, all of whom were Dr. Harrington's patients: 1st, A woman who made caps from blue cloth. She was attacked by ulceration over most of the body, with swellings, and with constitutional disturbances which had not subsided at the end of two years. The cloth proved to contain a "large amount of chromium." To dust arising from it the symptoms are assigned. 2d, The case of a clergyman whose hands ulcerated. His gloves proved to contain "a large amount of chromium," and to this the ulcers are attributed. 3d and 4th, Two young boys who were attacked with nausea, vomiting, fever, delirium, and convulsions. Their new suits of clothing were examined, and proved to contain "chromium in great abundance." The paper states that its compounds, when taken internally, produce symptoms similar to those described. One child sucked his fingers, and the other bit his nails. And thus the chrome-poison was introduced. The dejecta from the elder of the boys proved to contain "traces of chromium, and thus established the diagnosis of poisoning."

The well-written and highly indorsed paper, curiously enough, does not offer the slightest evidence that chromium or any of its compounds, in any quantity, however large or small, can injuriously affect the animal body. Furthermore, there is no reliable tradition or literature to that effect. And yet chrome-dyes have been in general use since 1828 at least, the American consumption alone being thousands of tons annually. In fact, so general is their use, that chromic oxide may be found in almost any piece of cloth which may happen to be at hand.

In the entire absence of any reliable literature pertinent, I was led to make studies as to the poisonous effects of chrome-salts. In the weaving of fabrics, the yarn suffers a constant succession of shocks and scrapings, which must detach any thing like dust which may adhere to it. If, then, dust from chrome-dyed yarn had any poisonous effects, weavers ought to have some knowledge of it. Inquiries were set afoot in three mills in Philadelphia, and from none was there reported any injurious effect from such dust. If any existed, it was not known to the weavers. This seemed important.

Similarly, and in the same way, dyers were questioned, and none of them had any knowledge of injury from chrome. Such operatives have their hands and arms in chrome-dyes at almost any hour of the day, and therefore their replies seemed interesting.

Of even more importance are the workers in a chrome-factory, one which has been in operation over fifty years. Here are produced the alkali bichromates which dyers use. The operatives (some hundreds in number) live in an atmosphere quite heavily charged with alkali chromate dust, visibly charged. Yet these people are as healthy as those in other occupations. As a matter of fact, there may any day be seen at this factory several pensioners, worn out in the service, and now too old to do more than the semblance of labor.

But this is to be said, every man who works exclusively within the factory has the nasal septum partially destroyed in from eight to twenty weeks. The cautery then ceases, and there is no further inconvenience. And, further, if strong chrome-liquors, or much chrome-dust, be allowed to get upon any abrasion of the skin, they are apt to produce sores; and, if these sores be treated to more chrome, they will continue to suppurate, and will produce sores with vertical walls, having the appearance of syphilitic chancres; but if a sore be protected by salve, or otherwise, it heals like any other one would.

Through the courtesy of a practising physician, the health of these bichromate-makers was discussed at a meeting of a medical society whose members had the care of them. No chrome-disease or chrome-poisoning was known to those physicians.

To sum up so far: there is not known to exist, among the workers in any of the forms of chrome, any chrome-disease or chrome-poisoning from contact, from inhalation, or otherwise. This much established, there was no risk in the following experiments: —

1. Three healthy men were exposed for four hours to an atmosphere containing vapors from boiling sodium bichromate, — vapors visible in a beam of sunlight.

2. Two healthy men were exposed twenty minutes to an atmosphere containing visible clouds of dust of neutral sodium chromate.

3. The lower half of a shirt-sleeve was saturated with a ten-per-cent solution of potash bichromate, and then bound around the arm from wrist to elbow. It remained thus in contact with the skin three hours, and was kept moist.

4. A piece of white cotton cloth was dyed black in the ordinary way, by sumac, iron nitrate, chrome, and logwood. After washing in cold water alone, and passing through a clothes-wringer, a piece of it, eight inches wide and ten inches long, was pinned to the inner side of the undershirt, and worn in contact with the skin for four hours on a hot day.

No experiments were made to ascertain the effects of wearing chrome-dyed clothing, only because the writer was able to recall precisely the cases of so many men, women, and children who had done that without any deleterious results, so far as known. None of them, at least, were affected in any of the manners described as due to chrome-poisoning, in Dr. Harrington's communication. No unpleasant results followed any of the experiments mentioned. No one of the subjects has suffered in the slightest. The time elapsed is more than a month.

In the daily papers of July 12 of this year, appeared the report of a coroner's jury which considered the cases of several persons who died in Philadelphia during the years 1885, 1886, and 1887, from eating buns, it was supposed, made by Palmer, a baker, who had put into them chrome-yellow. The ages of the victims were from three years to twenty-four years, among them being seven of Palmer's own family. He did not deny having put lead chromate in the buns. It was, indeed, in evidence that eighty per cent of Philadelphia bakers so used it. The testimony of Dr. Stein, Dr. Stewart, and Dr. Stark, the attending physicians upon the particular subjects under consideration, was that the symptoms were those of lead-poisoning, and that they set about to search for the source. They found it in Palmer's bakery, — the lead chromate which he put in the buns. The viscera of victims, after death, were submitted to Dr. Leffman,