SCIENCE:

A WEEKLY NEWSPAPER OF ALL THE ARTS AND SCIENCES.

PUBLISHED BY

N. D. C. HODGES,

47 Lafayette Place, New York.

Subscriptions.—United States and Canada.. .....$3.50 a year.

Great Britain and Europe..... 4.50 a year.

Communications will be welcomed from any quarter. Abstracts of scientific papers are solicited, and one hundred copies of the issue containing such will be mailed the author on request in advance. Rejected manuscripts will be returned to the authors only when the requisite amount of postage accompanies the manuscript. Whatever is intended for insertion must be authenticated by the name and address of the writer; not necessarily for publication, but as a guaranty of good faith. We do not hold ourselves responsible for any view or opinions expressed in the communications of our correspondents.

Attention is called to the "Wants" column. All are invited to use it in soliciting information or seeking new positions. The name and address of applicants should be given in full, so that answers will go direct to them. The "Exchange" column is likewise open.

COTTON-SEED MEAL IN THE DAIRY RATION.

In bulletin No. 14 of the Texas Experiment Station is reported a series of experiments made to determine the influence of cotton-seed meal in the dairy ration on the creaming of milk, both by the common or gravity method and the centrifugal method.

In these experiments, cows were tested in lots containing several cows each, the cows in the contrasted lots being in as uniform a condition with respect to milk-flow, time from calving, etc., as it was possible to arrange them. The feed for each pair of contrasted lots was the same, except that one lot received equal parts of corn-meal and bran as bye food, while the other lot had cotton-seed meal and bran in equal parts.

In the case of two lots of five cows each that were far advanced in milk (100 to 124 days on the average) it was found that where the cream was raised by gravity at the ordinary summer temperature, the milk being set at about 70° in Fairlamb cans and skimmed when sour (in twelve to twenty-four hours), an average of 18.4 pounds of butter was lost in the skim-milk of the cows fed on cotton-seed meal for every hundred pounds present in the milk set, as againt 30.9 pounds lost when no cotton-seed or cotton-seed meal was fed.

In the case of two lots of four cows each, less advanced in milk (88 to 93 days) the loss of butter-fat in the skim milk on the cotton-seed meal ration was 22.7 pounds out of every hundred pounds actually present in the original milk, against 31.8 pounds lost when no cotton-seed meal was used.

In the case of two lots of three cows each that averaged but fifty days from calving at the beginning of the test, the loss was 11.3 pounds on cotton-seed meal ration, against 14.9 pounds when no cotton-seed was fed.

The average loss on cotton-seed meal for ordinary setting was therefore 17.5 pounds out of every hundred pounds present in the original milk, against 25.8 pounds lost when no cotton-seed meal was fed.

Where the milk of five cows, a hundred and fifty-two days from calving, was set at a temperature of 45°, and kept at this temperature with ice for twenty-four hours and then skimmed, the loss was 37.6 pounds out of every hundred pounds in the original milk, the cows having no cotton-seed meal; while five cows a hundred and thirty-two days from calving and having cotton-seed meal, lost but 22.9 pounds out of every hundred. When the milk was kept only twelve hours before skimming, the loss without cotton-seed meal was 49.1 pounds, against 31.7 pounds lost with cotton-seed meal, showing a decided advantage in the longer setting.

When the cream was extracted by the centrifugal method as soon as milked, that from four cows, two hundred and ten days from calving, showed a loss of but 1.8 pounds without cotton-seed, and that from four cows, two hundred and eleven days from calving, but 2.3 pounds with cotton-seed meal That from four cows, sixty-two days from calving, and having no cotton-seed, lost 3.27 pounds, and that from four cows, fifty-eight days from calving, and having cotton seed, lost 3.3 pounds out of every hundred actually present in the whole milk.

These results show that in the case of centrifugal creaming, a very much larger per cent of the butter-fat present in the milk is obtained, and that without regard to the character of the feed used, whereas in ordinary gravity creaming the character of the food may have a very marked influence upon the quantity of butter obtained from the milk.

LETTERS TO THE EDITOR.

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

On request in advance, one hundred copies of the number containing his communication will be furnished free to any correspondent.

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

Throwing-Sticks.

In the report of the National Museum for 1884 I published a short paper on the "throwing-sticks" of the Eskimo in the Department of Ethnology. The object of this article was to show how the methods and problems of natural history are applicable to the products and apparatus of human industry. Here we had a homogeneous people in blood and language, occupying a zoological area which we call hyperborean, and stretching out to cover Labrador, Greenland, all Arctic Canada, and the shores of Alaska from the Mackenzie district all round to Mt. St. Elias. It was with genuine pleasure that I afterward received from Dr. Seler, Mr. Murdoch, Dr. Stolpe, Dr. Uhle, Mr. Bahnson, Mrs. Nuttall, and Dr. Mortillet their own later contributions upon the same ingenious implement, with the acknowledgements that their publication was stimulated by the Eskimo paper. (Altmexikanische Wurfbretter, von Dr. Ed. Seler, Internationales Archiv für Ethnographie, Bd. iii., 1890; The History of the "Throwing-stick" which drifted from Alaska to Greenland, by John Murdoch, Am. Anthropologist, July, 1890; Ueber Altmexikanische und südamerikanische Wurfbretter, von Dr. Hjalmar Stolpe, in Stockholm, Internat. Archiv f. Ethnog., Bd. iii., 1890; Ueber die Wurfholzer der Indianer Amerikas, von Dr. Max Uhle, Mittheil. der Anthrop. Gesellsch., in Wien, Bd. xvii., n.f. vii., 1887; Ueber südamerikanische Wurfholzer im Kopenhagener Museum, von Kristian Bahnson, Internat. Archiv f. Ethnog , ii., 1889; Mrs. Zelia Nuttall, in a paper read before the Woman's Anthropological Society in Washington, entitled The Atlatl or Spear-Thrower of the Ancient Mexicans, Arch. and Ethnol. Papers of the Peabody Museum, i., No. 3; Les Propulseurs a crochet Modernes et Prehistoriques, Part A., drien de Mortillet, Rev. Mensuelle de l'Ecole d'Anthropologie de Paris, i., 15 Aout, 1891.)

In plate xvii. of my paper two very interesting old specimens are described from the Tlingit or Koloschanaua about Sitka. One of these is figured in Ensign Niblack's monograph (Smithsonian Report, Part II., 1888, plate xxvii, fig. 157). These specimens are very old, are covered with totemic devices, and represent a decayed art passed into its mythic stage. I do not now know of any similar device for throwing spears or harpoons until we get to Mexico, where, as is well shown in the works above quoted, the altatl was one of the commonest weapons. Imagine my great pleasure, therefore, on receiving from Lake Patzcuaro, in Mexico, a modern altatl, well-worn and old looking, accompanied with a gig for killing ducks. The apparatus was bought from the hunter by Capt. John G. Bourke, U.S.A., and may now be seen in the National Museum. The thrower is two feet three inches long, and has two finger-holes projecting, one from the right and one from the left side. In my paper on the Eskimo stick no case of two