structure had ever been found in the entire order of copepods, and hence Dana must have been mistaken in what he thought he saw. Steenstrup and Lütken described and figured a similar structure in the maxillipeds of their new genus Perissopus (Kongelige Danske Vidensk. Selskabs Skrifter, ser. 5, vol. 5, 1861, pl. 12, fig. 25), and there is every reason for believing the structure in both genera to be genuine.

Absolutely hypothetical reasoning like that quoted above can have but little influence, and it certainly does not possess sufficient merit to prove or disprove the validity of any genus.

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NEW DUST TREATMENTS FOR OATS SMUTS

SINCE the introduction of copper carbonate for wheat bunt control (Darnell-Smith, and Ross, 1919)[1] considerable interest has been shown in dust treatments for grain smuts. It was found by one of us (Thomas)[2] in field tests in 1924 that copper carbonate alone was not effective in controlling oats smuts. However, when one part of either copper carbonate or copper sulfate was mixed with two parts of mercuric bichloride the dust was effective. These mixtures are too expensive for general use even though rapid and easy of application. Other tests showed that the mixture was less effective when inert fillers were added. In 1926 a mixture of one part of copper sulfate, one part of mercuric bichloride and one part of cresylic acid was found to control oats smuts. While the cost of this dust was only about half that of the copper sulfate-mercuric bichloride dust, yet it is also too expensive for general use.

None of these dusts, although they gave satisfactory control of oats smuts, was as cheap as the liquid formaldehyde. This liquid treatment is objectionable because of the difficulty in handling the wet grain and the possibility of seed injury. Since formaldehyde is so effective against smut, and the wet methods of grain treatment are objectionable, an attempt was made to put formaldehyde in a dust form. This was done by mixing 40 per cent. formaldehyde with either infusorial earth or charcoal. These dusts stick well and thoroughly coat the grains when mixed with them. In these tests dusts containing 9 per cent., 15 per cent. and 25 per cent. of 40 per cent. formaldehyde were used, each at the rate of 3 ounces per bushel of grain. While the checks showed 47 per cent. smut the various formaldehyde dusts reduced smut to less than one per cent.

Another new treatment, iodine vapor dust, was tried in these same experiments. This dust was made by mixing finely ground solid iodine with infusorial earth. The iodine vaporizes readily at ordinary temperatures and diffuses through the infusorial earth giving it a light yellow-ochre color. This dust contained 5 per cent. by weight of iodine and was applied at the same rate as the formaldehyde dust. Only three smutted heads were found in three one-hundredth acre plots which were treated with this dust. It is possible that lower concentrations of iodine dust will also control the oats smuts. Further tests are under way. The cost of treating grain with these dusts is estimated at considerably less than 5 cents a bushel.

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DO CATS SHARPEN THEIR CLAWS?

LAST winter the family cat (castrated male, 3½ years old) shed a number of claws in the house. These were found during January and February, some of them split lengthwise, the others intact. It struck the writer that the shedding of claws is probably a normal phenomenon with cats comparable to related phenomena, as that of the shedding of horns by deer. If this were true, it might be expected that some of the claws would be left in the bark of those trees which the cat used regularly for scratching. Upon investigation in April this bit of evidence was found in the form of two halves of a claw stuck into the bark of an elm and several halves lying under different trees used by the animal. The section of the bark was cut from the tree and with the pieces of claws has been mounted and placed in the college zoological museum.

This is but an isolated observation. There are good grounds, however, for believing the conjectured explanation to be correct. Cats do not instinctively or from experience select good grinding surfaces, slightly rough and hard, such as a cement walk, the foundation stone or the corner boards of a house, or smooth hard posts. They make use of the rough bark of trees which is always much softer than their claws. Observations of their scratching movements show that the animals do not scrape downward over the surface of the object, but catch the claws into the surface and with a circular stroke pull first downward and then outward and slightly upward. Careful examination of the cat's paws each time when a

[1] Darnell-Smith, G. P. and Ross, H. A dry method of treating seed wheat for bunt. *Agr. Gaz. N. So. Wales* 30: 685–692, 1919.

[2] Thomas, Roy C. Dust treatment for smut in oats. SCIENCE, No. 1567, Vol. LXI: 47–48. January 9, 1925.

claw was found failed to reveal any sign of injury. It was impossible to identify the toe from which the claw had dropped. This strikes the writer as fair proof that the shedding of claws is a normal phenomenon. The claws of the rear feet are possibly lost as they become loosened, or they may be pulled out by the animal with his teeth. Cats are frequently seen to pull at their hind claws in a manner suggesting this.

The shedding of claws is most likely seasonal, as are the related phenomena in other animals. Why then should the cat carry on the scratching movements throughout the year? It is possible that a further function of the scratching may be that of keeping the claws from curving too much, consequently growing into and irritating the paw. The irritation caused by claws which are curved too much or by the itching or other annoyance of loose claws may be the stimulus that starts the scratching movements. In this connection a colleague, a zoologist, has called attention to a reaction of badgers. These animals frequently drop out of an intense fight, roll over on their backs and scrape the claws of their front paws by rapidly drawing the paws across each other, pads facing. In accounting for the continuation of the scratching activity throughout the year, however, the likelihood of this being a habit reaction must not be overlooked.

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RECENT PUBLICATIONS OF THE NATIONAL RESEARCH COUNCIL

TWO recent publications in the National Research Council's *Bulletin* Series should be of rather wide interest among scientific men. One (Bulletin 58) is entitled "Handbook of Scientific and Technical Societies and Institutions of the United States and Canada." The American section of this bulletin was compiled by Clarence J. West and Callie Hull, and the Canadian section by the National Research Council of Canada. The other (Bulletin 60) is entitled "Industrial Research Laboratories of the United States, including Consulting Research Laboratories, Third Edition." This bulletin was compiled by Clarence J. West and Ervye L. Risher. Both bulletins are the output of the National Research Council's Research Information Service, of which Dr. West is director.

The purpose of publication of the handbook is to present a ready guide to those scientific and technical societies, associations and institutions of the United States and Canada which contribute to scientific knowledge or further research through their activities, publications or funds. Only those government institutions are included which administer private funds. Organizations directly controlled by universities or colleges have been omitted because it is expected that they will be covered by the forthcoming publication, "American Universities and Colleges," to be issued by the American Council on Education. Seven hundred and nine American organizations and seventy-four Canadian organizations are listed in the bulletin. The address of the secretary, the date of organization, the major object of the institution, the character of membership and amount of dues, time of meetings and information concerning publications are given for each institution.

The bulletin on Industrial Research Laboratories lists 999 such laboratories in the country, giving for each laboratory the name and address of the supporting industrial or commercial concern, the makeup of the research staff, and a list of special subjects to which the research activities of the laboratory are devoted. The first edition of this bulletin was published in 1920 and listed about 300 laboratories; a second edition (first revised edition) was issued in 1921 and listed about 600 laboratories. The present edition (1927) is the second revision of the bulletin.

The difficulties of compilation in connection with both of these publications make it inevitable that some errors, both of commission and omission, have been made by the compilers. The director of Research Information Service (National Research Council, Washington, D. C.) will be glad to have his attention called to any such errors noted by any who may have occasion to examine the bulletins.

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SCIENTIFIC APPARATUS AND LABORATORY METHODS

PREPARATIONS OF STAINED DECALCIFIED BONE WHICH RIVAL GROUND SECTIONS

GROUND sections of bone, besides being difficult to prepare, are often unsatisfactory for student use either on account of their thickness or due to the fact that they have been mounted in thin xylol-balsam, resulting in the displacement of the air from the lacunar and canalicular spaces of the tissue. It is, however, possible to prepare decalcified bone in such a way that all the advantages of canalicular detail are obtained. Two methods by Schmorl,[1] the picro-thionin and the thionin-phosphotungstic acid

[1] 1909. Schmorl, G. "Die pathologisch-histologischen Untersuchungenmethoden." Vogel, Leipzig.