"Unpublished" or "In Press"?

Curt Stern [*Science* **119**, 221 (1954)] makes a comment on unpublished articles that has, in my view, wider implications. I submit that it is both conceited and illogical to say, for example, "Further details of these experiments will be published elsewhere" if, in fact, no further paper on the subject has yet been accepted for publication. Whether the paper has been submitted and not accepted, or whether it has not yet been prepared, does not affect the issue; in either event the author is not in a position to state that his further results will be published, unless he arrogates to himself the function and abilities of a prophet! On the other hand, if he wishes to refer to work that Stern calls "actually in press, that is, accepted by a journal," it is both discourteous and inconveniently reticent to refrain from naming the journal. Reference to work at this stage should be given in some such words as "Further details of this investigation are being published elsewhere (*7*)." Then, at the end under "References": A. U. Thor and A. N. Other, *Science,* in press."

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Our present policy, to which we doubtless have been holding all the more carefully as a result of Bacharach's letter to us, is to ask authors to delete "in press" references when the name of the periodical which has accepted the paper cannot for one reason or another be furnished. As for references of the "in preparation" and "unpublished" sort, these have often been left undisturbed. A reference to unpublished work may be useful for it enables—indeed, should be regarded as inviting—interested readers to communicate directly with the author for details of the work.

Method for Extraction of Substances from Liquid Samples

A modification of the Soxhlet apparatus, which is normally used for extraction of substances from solid samples, makes it possible to use this apparatus to extract substances from liquid material also. Extraction may be performed with solvents either heavier or lighter than the sample. Volatile substances can also be extracted.

When the solvent is lighter than the liquid sample, the modification consists of replacing the extraction thimble with a new device. This device consists of a funnel within a glass tube (Fig. 1). The bottom end of the funnel, though closed, must be perforated with small holes. The size of the funnel and tube will vary according to the size of the Soxhlet apparatus, and therefore depends on the volume of the sample.

If a Soxhlet apparatus with a 250-ml flask is used, the tube may be 8 cm long and 2.5 cm in diameter; the funnel will be 12.5 cm long and 3.5 cm in diameter at its largest point, and 0.8 cm in diameter at the stem. In this case about 20 ml of sample may be used. The sample (for example, aqueous solution) is placed in the tube. The solvent, after being distilled, passes through the funnel and escapes through the holes at the bottom; it then moves upward, passing through the sample, and extracts the material in it and forms a layer on the sample. After having reached the edges of the tube it goes into the Soxhlet apparatus and may be siphoned over to the flask.

When the solvent is heavier than the liquid sample, the modification consists of replacing the extraction thimble with a glass tube having a small side ramification (Fig. 2). As in the case of solvents that are lighter than the liquid sample, the size of the Soxhlet apparatus must vary according to the volume of the sample.

For a 250-ml flask, the tube, which must be slightly larger in diameter at the top, must be 11.5 cm long and 2.5 cm in diameter; its diameter at the widest point must be 3 cm. The side ramification may be 5 cm long and 0.5 cm in diameter. In this instance, about 20 ml of the sample may be used. Before placing the sample in the tube, it is necessary to place some solvent in it in order to prevent drops of the sample from passing through the side ramification. The distilled solvent reaches the surface of the sample; being

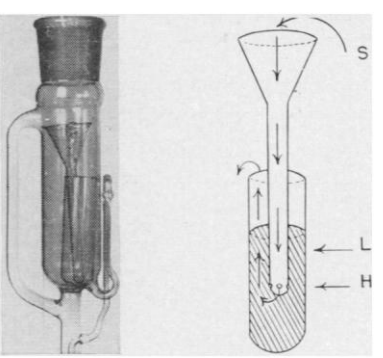

Fig. 1. Modification for solvent *S* lighter than water; *L*, liquid sample; *H*, holes.

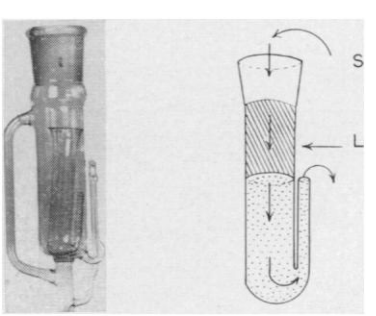

Fig. 2. Modification for solvent *S* heavier than water; *L*, liquid sample.

heavier, it passes down through the sample and extracts the substance. The solvent reaches the side ramification level, goes into the apparatus, and may then be siphoned over to the flask.

This method can be used for several purposes: for extraction of substances from liquid samples; for volatile substances or solvents; for solvents lighter than the samples; for solvents heavier than the samples; for partial extractions (the flask with solvents must be changed during the extraction). The method is being used for extraction of organic acids in feces, in research assisted by financial grants from the São Paulo Jockey Club.

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Reingestion in the Hare *Lepus europaeus* Pal.

The domestic rabbit produces special small soft fecal pellets that it takes directly from the anus and swallows whole (*1–4*). In this way, a large part of the food passes twice through the alimentary tract. This behavior, which has been termed *refection* (*2*) or, more appropriately *reingestion* (*5*), also occurs in the wild species (*Oryctolagus cuniculus*) (*6*) and is an important daytime activity of the animal (*5*). The question arises as to how far it is a feature of the biology of lagomorphs generally. A casual observation on a pet hare recorded as long ago as 1895 (*7*) suggested that reingestion also occurred in this species. It was therefore decided to collect wild hares (*Lepus europaeus*) at known times of the day and to examine the contents of the stomach and rectum for evidence of this behavior. Altogether 66 hares were examined from various localities in New Zealand.

Table 1. Incidence of reingestion in *Lepus europaeus*.

Time of day	No. examined	No. with soft feces
2 A.M.	7	0
4 A.M.	2	0
6 A.M.	2	0
8 A.M.	5	2
10 A.M.	5	5
12 Noon	1	1
2 P.M.	0	
4 P.M.	7	2
6 P.M.	8	0
8 P.M.	3	0
10 P.M.	23	0
Midnight	3	0
Total	66	10

The recta of several of these animals contained soft amorphous feces, and apparently identical material was present in the cardiac ends of their stomachs. The fecal origin of this material in the stomach was confirmed by the presence of comparable numbers of oöcysts of intestinal coccidia in both the feces and stomach contents of several of the animals. Table 1 groups all the animals examined into 2-hr periods throughout the day according to the time of death. It can be seen that the amorphous feces were found only in hares killed between 6 A.M. and 4 P.M. and that they were found in the recta of all animals killed between 8 A.M. and 12 noon. This corresponds almost exactly to the time when reingestion takes place in the rabbit (*5*) and shows that the hare has a similar well-defined diel rhythm.

It now seems likely that reingestion will be found as a normal feature of lagomorph biology. So far only two European species *O. cuniculus* and *L. europaeus* have been studied, and no information has been recorded on this aspect of the biology of any of the many American species. Reingestion could easily be overlooked, particularly if the soft feces are semiliquid, as in the European hare, since then they might be taken as an indication of some intestinal disorder; however, the regularity in the time of their appearance should disclose their real nature.

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References

1. H. Madsen, *Nature* **143**, 981 (1939).
2. A. Eden, *ibid.* **145**, 36 (1940).
3. E. L. Taylor, *Proc. Zool. Soc. Lond.* **110**, 159 (1940).
4. H. M. Olsen and H. Madsen, *Vidensk. Medd.* **107**, 37 (1944).
5. J. S. Watson, *Proc. Zool. Soc. Lond.*, in press.
6. H. N. Southern, *Nature* **149**, 553 (1942).
7. R. Drane, *Trans. Cardiff Naturalists Soc.* **27**, 101 (1895).

18 January 1955.

Science does not know its debt to imagination.—R. W. EMERSON.