was dipped into this drop. The progress of staining must be followed under the microscope because NORs are stained immediately (20–40 sec). Time of developing can be delayed by using cold agents (+5 °C). The chromosomes remain a light yellow colour and the NORs stain black. After Ag-staining the preparations were rinsed in distilled water and dehydrated in 96% ethanol. For G-banding a pretreatment in phosphate buffer (pH 6.8) for 10 min was necessary. Thereafter the preparations were trypsinized in 0.025% trypsin (Difco) diluted in phosphate buffer at pH 6.8, for 5–7 min. Then the slides were rinsed in distilled water and stained in phosphate-buffered (pH 6.8) Giemsa (Merck) 1:15 for 8 min at room temperature. After rinsing in distilled water, the slides were dried and mounted in DPX.

The results of this Ag-G-staining can be seen in figures 1 and 2, which represent metaphases of cattle and goat. The chromosomes show a distinct banding pattern and the NORs at telomeric positions are clearly visible. As in humans[9], polymorphic behaviour of Nor bearing chromosomes could be observed, with variation in the number and amount of silver precipitates from individual to individual. This may be the expression of activity of rRNA which represents a Ag-NOR pattern characteristic for each individual and each species.

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An improved vacuum collector for fungal spores

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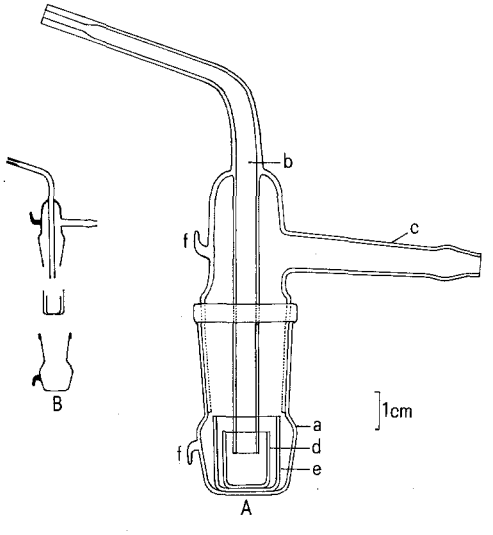
Summary. An all-glass improved vacuum collector for fungal spores is described and its merits mentioned. The description of the required components is also given. This vacuum collector combines the merits of smaller dimension and greater efficiency by accommodating Conway Diffusion cells in the spore receiving vessel.

The collection of dry fungal spores from infected plants or from solid culture surfaces is tedious and time-consuming; particularly when substantial quantities of material are required. In addition, the spores must be collected free of contaminants for the purpose of physiological study. For collection of dry fungal spores, small and large cyclone separators have been described[2,3]. Tervet et al.[4] described the use of a group of cyclone separators for collections of dry fungal spores from infected plants. A modified and enlarged version of the collector of Tervet et al.[4] has been described by Cherry and Peet[2] that permits rapid collection of fungal spores from cereal plants growing in pots, flats, or in the field. Woodbury et al.[3] have described a simple all-glass vacuum collector for collection of small quantities of fungal spores.

During the course of our studies on the physiology of fungal spore germination we have constantly felt the need for a simple all-glass vacuum spore collector that would be easy to operate, could be conveniently sterilized and could also provide spores free from contaminations. Consequently we report here an improved version of the collector described by Woodbury et al.[3]. Though originally deviced for collection of dry fungal spores from solid culture surfaces, this spore collector can be adapted for collection of pollen grains and spots from TLC plates.

The figure shows details of the construction. The list of materials shows the components and the number required. All materials are Jena Glass except the rubber band on the retainer used to keep the collector intact during operation. A water aspirator pump (not shown in the figure) is sufficient to provide the necessary vacuum.

Experience gained with the use of this spore collector has shown some distinct merits over the existing ones. This small glass collector can be conveniently sterilized. The Conway diffusion cells that can be accommodated inside the spore receiver permit collection of larger quantities of spores when required, simply by replacing them with other such cells or the micro-Conway diffusion cell if smaller quantities of spores need collection. Thus the need to have a larger spore-receiving vessel and thereby to increase the dimensions of the collector is eliminated. The spores while still inside the spore collector can be vacuum infiltrated



The spore collector, *A* assembled, and *B* dismantled, to show the components.

Materials list.

Item	Number required	Description
1	1	Spore receiver (a), with B24/29 ground glass mouth (♀), 20 mm deep/22 mm wide, capacity 5 ml up to the neck.
2	1	Cyclone tube (b) (Spore inlet tube), 2 mm internal diameter (up to 1.5 cm from the tip) with dilated (0.5 cm) base passing through B24/29 (♂) hollow ground glass stopper, length, 5 cm from the tip and 8.5 cm through the stopper, bent about 60°.
3	1	Vacuum line glass connector (c), length 5 cm, diameter 0.5 cm.
4	Any required number (1 for complete outfit)	Micro-Conway diffusion cell (d) (minus the lid), 13 mm deep/13 mm wide, capacity 0.5 ml.
5	Any required number (1 for complete outfit)	Conway diffusion cell (e), (minus the lid) 18 mm deep/18 mm wide, capacity 2 ml.
6	1	Rubber band retainer (f)

a, b, c, d, e, and f refer to components of the collector in the figure.

with aqueous solutions of fungicides/drugs by closing the opening of the cyclone tube (b). Since the cyclone tube dips slightly below the rim of the Conway diffusion cell in the spore receiver, it prevents spores being either carried away through the vacuum line or sticking to the inside wall of the spore receiver. All spores are collected in the diffusion cell only. The diffusion cells can be used as preweighed vessels for weight determination of fungal spores and pollen grains.

The dimensions of the various components of this collector are not critical except the bore of the spore inlet tube which of course is critical, since a large bore size leads to mycelial bits being picked up with the spores. However, considering the spore size of a large number of pathogenic and non-pathogenic fungi a bore size of about 2 mm internal diameter was found to be most convenient.

1 The award of a Junior Research Fellowship to M.S. from U.G.C. is thankfully acknowledged.

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SYMPOSIA

An interdisciplinary symposium on the brine shrimp *Artemia* in the USA

A very unusual scientific event happened recently: from August 20–23, 1979, the 1st international symposium on the brine shrimp *Artemia* was organized in Corpus Christi (Texas, USA) by the port Aransas Marine Laboratory of the University of Texas Marine Science Institute and the *Artemia* Reference Center of the State University of Ghent, Belgium. About 200 participants from 24 countries attended this conference.

During the 1st day, 6 review papers were presented on the various disciplines of *Artemia* research, i.e. ecology, radiobiology, physiology, biochemistry, molecular biology and aquaculture. 80 invited and regular papers were then presented during the next 2 days. The last day of the conference was devoted to the organization of 4 workshops on the following topics: characterization of *Artemia* strains for application in aquaculture; commercial aspects of *Artemia*-exploitation; species characterization in *Artemia;* proposal for an intercalibration exercise for a standard *Artemia* toxicity test. The proceedings of this conference, containing all the papers presented and the reports of the workshops, will be published in 3 separate volumes.

One of the most interesting aspects of this symposium was the meeting together of scientists and aquaculturists who found in the brine shrimp a new source of food of economic interest that could be cultured. From the 4 sections (morphology, genetics and radiobiology; physiology and toxicology; biochemistry and molecular biology; ecology, culturing and use in aquaculture) the following most interesting points were discussed:

1. *Artemia* is a genus of the Phyllopoda, which comprises different closely related species (sibling species). This new information leads to an entirely new systematic within this genus.
2. The environment plays an important role in the life cycle and, for an optimal production, several factors must be considered, like salinity, light, temperature, oxygen and nutritional requirements.
3. *Artemia* is an excellent material for biochemical and molecular studies.
4. Production techniques for nauplii, adults and cysts are now experiencing a real revolution. Furthermore, new criteria are proposed for evaluating the "suitability" of *Artemia* strains as a food source. The knowledge gained from the fundamental scientific studies of *Artemia* greatly contributes to a better use of *Artemia* in aquaculture. Especially important is the conservation of wild populations together with a better knowledge of some basic elements relevant to their natural productivity.

The symposium will certainly be a turning point for *Artemia* studies, since the genus has become important for mankind as a source of food. The collaboration between pure biologists, aquaculturists and industrialists is doubtless on the verge of being a very fruitful one.

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