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STROMBUS LISTERI GRAY, 1852 (MOLLUSCA; GASTROPODA); MORALS TO BE LEARNT FROM DAMAGE TO ONE OF THE OLDEST KNOWN DOCUMENTED SPECIMENS - A RETROSPECTIVE VALUATION.

E. Geoffery Hancock

[See full paper below].

COLLECTIONS AS BIOGEOGRAPHICAL ARCHIVES.

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[Abstract awaited]

THE COLLECTIONS OF THE NATIONAL MUSEUM OF NATURAL HISTORY IN THE SCIENTIFIC INSTITUTE AND THE ENVIRONMENTAL RESEARCH IN MOROCCO

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The National Museum of Natural History has developed since 1920 a unique and irreplaceable collection of specimen lots in Botany, Zoology and Geology. These have been safely housed, safeguarded, documented and kept accessible.

These collections are an integral part of Morocco's natural heritage and will be preserved in trust for research and posterity. Hence the scientific staff is pursuing a variety of research subjects, encompassing a wide range of disciplines in the natural sciences.

Because of its richness, diversity and its natural types, our collections respond to all scientific demands both nationally and internationally. Cooperation is established with many universities in Morocco. Its purpose is to use collections and to share research knowledge for the resolution of environmental issues to enhance their productivity. Colleagues from abroad visit our collections or request information also.

The aim of the National Museum of Natural History is to provide creative scientific and economically viable solutions to environmental problems. The museum's data bank of treasures will be available to future generations.

Velson Horie see *Dr Gary Cleland*

THE HISTORICAL COLLECTIONS OF THE BOTANICAL MUSEUM OF FLORENCE AND THEIR SCIENTIFIC VALUE.

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One of the chief tools for the improvement in systematic information about plants continues to lie with the herbarium whose origin, as a *"hortus siccus"*, dates from the beginning of the sixteenth century.

Apart from the importance of all these more or less recent collections of dried plant specimens for floristic, phytogeographic and more strictly systematic studies, many pre-eighteenth century herbaria, as well as those that are the result of the first expeditions to some regions (or even continents) hold particular importance either from a historical point of view or for scientific reasons, where they contain "type" material.

The Botanical Museum of Florence has, as well as the Herbarium Centrale Italicum (about 3.6 million specimens), numerous important historical collections. Of these, three herbaria can serve to illustrate in different ways the value of older collections.

The first is the Herbarium of Andrea Cesalpino (dated 1563). It is one of the most ancient herbaria in the world and, undoubtedly, the first to be organized according to a systematic principle.

The second is the Herbarium of Pier Antonio Micheli (1679-1737), comprising about 19,000 specimens (including those of Micheli and some of his pupil, G. Targioni Tozzetti), which is an important pre-Linnaean herbarium containing a large number of types. Linnaeus himself used Micheli's illustrations and descriptions extensively, and other botanists of eighteenth and nineteenth centuries referred to the specimens of this herbarium in the description of new species.

The third is the Herbarium of Philip Barker Webb (1793-1854), containing about 300,000 specimens and including, besides Webb's own important collections (from the Canaries, Madeira, etc.), numerous other collections such as those of Desfontaines (from Northern Africa), Labillardiere (from Australia, Syria, etc.), Ruiz and Pavon (from Peru, Chile, etc.) and Gardner (from Brazil, Ceylon), etc.

In this study the present scientific value of these historical collections is illustrated by some examples.

Vera Lucia I. Pittoni see *Dr Maria Helena M. Galileo*

THE EDUCATIONAL VALUE OF NATURAL SCIENCE COLLECTIONS

Ms Sue Dale Tunnicliffe

[See full paper below]

Dr Ian Wallace see *Dr Gary Cleland*

THE SOCIAL HISTORY VALUE OF NATURAL HISTORY COLLECTIONS.

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and
Chair of the Federation for Natural Science Collections Research - FENSCORE.

Collections of natural history specimens and information are the work of individual people - the collectors. It is suggested that collections have much to offer in the study of the social history as well as the natural history of the area, whether that be a county, region or country.

Collections combine information about places, times, people and species. They represent actual transactions, dated moments in history as valuable as dated letters and contracts in terms of the amount of information can be related to and derived. By using examples from the Midlands of England (UK) and the FENSCORE National Database the author hopes to show how collections have a value in providing new information of a social historical as well as a scientific interest.

There are many aspects that are illustrated and that will repay further study. For example collections represent scientific and personal fashions as well as the pursuit of science. The situation of the collector collecting varies; they may be on holidays, or commuting, or even coming under enemy fire! They may result from a personal part-time hobby or a full-time burning obsession. They may involve extreme personal danger or inspire extreme envy and theft. The paper attempts to show how the study of collections can both pose and answer questions which have great social and historical interest. Why do people collect? Is collecting a sexually dimorphic characteristic?

The sources of collections are also important. The geographical origins illustrate not only the favourite haunts of individual collectors but also, on the wider scale, the extent and wealth of worldwide contacts within the old 'empires' of Europe and the UK in particular. Contacts change over time. Whilst some of these contacts have declined in recent years others have grown; for example the rapidly increasing collections from Eastern Europe and selected third world countries reflect the increase in academic contacts with these areas.

Through this type of analysis the wealth of social data that are explicitly available within collections and some of the implicit connections with the wider social context can be shown, placing natural history collecting and collections more at the centre of worldwide human endeavour.

PRACTICAL EXAMPLES OF THE APPRAISAL AND VALUATION OF NATURAL HISTORY COLLECTIONS.

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Valuation in the natural history area and presentation of the numerical results in an appraisal report depends on a number of considerations. The use of photographs is sometimes the best indicator of what an object is and what it is not.

Examples of how photographs should be taken will be shown and the errors of description without photographs will be described.

THE CULTURE COLLECTION OF ALGAE AND PROTOZOA - A LIVING RESOURCE.

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Abstract

The primary remit of a protist collection, in this case micro-algae and free-living non-pathogenic protozoa, is broadly similar to that of other collections of biological material, that is to act as a depository and to make the material accessible for end-users, effectively a genebank. At the Culture Collection of Algae and Protozoa (CCAP), one of the UK microbial service collections, this involves collecting, maintaining and preserving the protists, and providing viable, authentic, documented cultures and their associated information to the scientific community.

The live cultures form the core of the collection. Their scientific value primarily lies in their current and past use in taxonomic and other research fields and the extensive literature published citing CCAP strain numbers. In terms of conservation of biodiversity, the collection arguably encompasses one of the largest degrees of biodiversity which can be found in any collection or genebank. This is particularly true for the algal collection which currently includes representatives of 50% of the algal species lodged in culture collections worldwide. They are also widely employed in teaching science at both secondary and tertiary levels of education.

The commercial value of cultures is more difficult to quantify. For those which are regularly employed commercially eg. *Selenastrum capricornutum* CCAP 278/4, which is used in ecotoxicity testing, a value could be calculated using its potential income generation from sales. Other commercially used organisms eg. those screened for novel pharmaceuticals, have the potential to generate substantial income, however the likelihood of a product being developed is low, even where pharmaceutical activities are observed. Most strains held in any major collection are probably of little direct commercial value, however, their scientific value and the costs which would be incurred in replacing the culture should it then be required demonstrates the necessity for their retention in the collection.

This paper discusses the above points in fuller detail and also focuses on the additional implications of maintaining a culture in a live or a preserved state.

Introduction.

The Culture Collection of Algae and Protozoa (CCAP) was founded by Professor Ernst Pringsheim at the Botanical Institute of the German University of Prague in the 1920's. Pringsheim and his cultures moved to England in the 1930's where the collection was enlarged and eventually taken over by E. A. George for Cambridge University. In 1970 these cultures formed the nucleus of the Culture Centre of Algae and Protozoa at Cambridge, financed by the Natural Environment Research Council (NERC). In 1986 the cultures and their associated activities were transferred to the Institute of Freshwater Ecology (IFE) Windermere laboratory (freshwater algae and all protozoa) and Dunstaffnage Marine Laboratory (DML) near Oban (marine algae). The CCAP currently maintains approximately 2000 strains of algae and protozoa at these two sites.

This paper discusses the various roles and functions of CCAP, a protist culture collection. Both primary and secondary roles of the collection and its associated scientists are detailed. The commercial, educational and scientific value of the algae and protozoa retained are also discussed. In the final section, future developments and the merits of maintaining a collection in a live or preserved state are discussed.