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Some reflections on Vegetation Science in our days: Impressions taken from the 42nd IAVS Symposium in Bilbao (Spain), July 1999

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The course of the 41 previous symposia of the IAVS, has reflected the various periods which have affected Vegetation Science (Mucina 1997) and they are partially remembered by our elder colleagues. In former times, "classic" Braun-Blanquetian phytosociology used to be the main (or even only) topic, and all issues on vegetation such as classification, dynamics, mapping, etc., were treated under that topic. In the last two decades there has been a progressive participation of vegetation scientists educated in other "schools" who have had an increasing relevance in the symposia of that period. Many of those scientists are nowadays members of the association and take part in its activities; this means, and it is widely assumed, that today the IAVS is not just an association of phytosociologists. This leads to the conclusion that IAVS Symposia have to be multi-school to permit the participation of the whole range of its members although regarding the logical bias given by the organisers on each occasion. This time, most of the organisers, including myself, can be considered as phytosociologists in a relatively "classical" sense, and that, perhaps, has encouraged some colleagues to take part while others have decided to wait for a better occasion. Nevertheless we intended from the very first moment to organise the 42nd IAVS Symposium for all. To achieve this a quite general topic was chosen, "vegetation and climate", an old but central issue in Vegetation Science which is always of interest to researchers as climate is one of the main conditions for plants. It could also be treated on all scales (from local to general, from the population or species level to the landscape or biogeographical level) and from all points of view (climate in the past or in the future, syntaxonomic implications, influence on population biology, biodiversity, phenology or productivity of plant communities, etc.)

In this 42nd Symposium, a high number of the contributions were related to its main topic. Nevertheless, we left the door open to participants who wished to contribute other themes not related with climate but which are also substantial to Vegetation Science. The result has been that there has been a total of 15 themes to be dealt with, among which have been included those of the main topic. This gives an idea of the thematic broadness of Vegetation Science nowadays and is also a sign of the strong vitality of this ecological science which is cultivated enthusiastically by many groups in a

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large number of countries. I certainly think that the annual symposia of our international association should always keep doors open in the future, as it did in the past, to all the topics related with Vegetation Science in the edition of each year.

The number of participants has reached 300 from over 40 countries and the contributions have been 268. The following table shows the distribution of the latter in the different topics:

Topic	# of oral presentations	# of posters	Total # of contributions
Climatic change	13	3	16
Influence of climate on features of plants and communities	9	9	18
Climatic conditions of plants and vegetation	7	8	15
Changes of vegetation in the past	5	2	7
Climate and vegetation types: bioclimatic classifications	8	11	19
Vegetation dynamics: succession	16	11	27
Population ecology	4	10	14
Biogeography	4	0	4
Fire and vegetation	5	18	23
Phytosociology: syntaxonomy and plant communities	9	21	30
Landscape ecology and management	5	15	20
Vegetation changes and gradients: zonation	12	10	22
Synecology and autoecology	7	22	29
Diversity	8	8	16
Other current topics on Vegetation Science	2	6	8
Total	114	154	268

In addition to the sessions, three one-day mid-symposium excursions were organised in order to visit some places in the Basque Country and the surrounding areas which could be of interest to the participants. The guides for those excursions were included in the abstracts book.

Thinking about this thematic diversity, I wonder if our science has really a coherent theoretical body or are there several mainstreams which develop in a quite separate way without regard for each other and not taking into account what is happening around and what we can learn from other colleagues working in other specialities? This sort of scientific autism is not very healthy in my opinion but it seems to increase as the amount of available literature grows and everyone has to select his information sources. Another aspect of this is the question of the "schools". Parallel to the development of the Continental western European school of Geobotany, strongly influenced by the Braun-Blanquet phytosociological system, in other areas other forms of studying vegetation developed: Anglo-Saxon countries were influenced by Gleason (1926) and Whittaker and in the

Soviet Union the mastership of RAMENSKY and SUKACHEV (ALEKSANDROVA 1973) profoundly marked the studies on vegetation for a long time. I am not going to describe and discuss this point because it has been written sufficiently about, but really at this moment, we are the heirs of that history and there are still marked differences between the researchers who have been educated in one or other school. The long-lasting discussions between the schools have occupied many decades and have often had a personal character. Now it seems they have diminished and perhaps such discussions, often dealing with the problem of subjectivity-objectivity, can be considered overcome to a certain extent.

Plant ecologists usually focus their researches on investigating the function of the plant community, how does it work: population ecology, succession, structure, productivity, interactions and other functional aspects of plant communities. On the other hand, geobotanists occupy themselves, under a holistic view, with vegetation classification and its relation with climate, soil, geography and human influence. The latter try to establish regional to world-wide scale systems to frame the vegetation diversity and the main factors which condition it, resulting in the phytosociological syntaxonomy, in the biogeographical synthesis, or in the bioclimatological typology. In that sense, they are probably able to provide a framework in which the former could find a geobotanical context to frame their research and results. Explanations about results obtained by means of experiments or observations in particular places are often presented as having a broad geographical value and their local character is often obscured. An appropriate geobotanical framework could help in evaluating how valid the explanative hypotheses constructed on the observed phenomena are in other territories. The consideration of the geobotanical context can be interesting in order to find out how valid (useful) experiences in other parts of the world about similar ecosystems can be. In other words, it will help us to measure how "similar" the supposed similar ecosystems are. The exercise of reflecting on which are the site conditions (geobotanically) in the place where we are planning to carry out research, is a way of considering the degree of comparability of our results with those obtained in other parts of the World. Comparability will be higher the closer both areas are geobotanically (geobotanical proximity) i.e. floristically, climatically, lithologically, biogeographically, etc. The question is how to make comparable the results of any experiments or observations in different vegetational (geobotanical) contexts, and how we assess their degree of comparability. In my opinion this is an unsolved question. For example, apart from purely methodological considerations, how can the study of primary production in grasslands in a particular place in a specific geobotanical context – flora and site conditions – and the results achieved after applying an adequate method, be useful for other researchers working on the same problem but in other geographical (and geobotanical) contexts? Mere comparison and bibliographical citation of such data is no guarantee that we are making a real scientific construction of theory. The accumulation of data is a necessary preliminary step in theoretical construction but such data must be compara-

ble. To achieve this, methodological rigour and adequate standardisation is needed. Data can be valuable independently but, like bricks, they have to be standardised if a large building is going to be built.

At its present level of development, our science has no satisfactory answer to this problem and we are still some way from finding a quantitative approach to it. Nevertheless some steps have been taken in that direction in several efforts which have tried to integrate all the information about vegetation and the site conditions of an area developing a discipline which has been named in several ways but we can keep here the name of "integrated or dynamic-zonal phytosociology" as the most explanatory. This discipline was started by Tüxen (1956) and followed by many others among whom we can point out Bolòs (1963), Rivas-Martínez (1976, 1994), Géhu (1979), Theurillat (1992), Alcaraz (1996) and Schwabe (1997) who are perhaps its main contributors and compilers. This "integrated phytosociology", as it tries to find out the patterns of the plant community-mosaics regarding the successional trends and incorporating all the biogeographical and bioclimatic information, could provide an appropriate "geobotanical context" for any research on vegetation. In any case, I have the impression that phytosociologists and plant ecologists still walk separately in the sense that the results yielded by each group are scarcely taken into account by the other. In my opinion, as far as we are studying the same thing, i.e. the vegetation, although we apply different methods, have different aims and work at different scales, a more fluent interconnection should be expected.

For that reason, IAVS symposia have to offer the possibility for researchers of different origins, countries, schools, etc., to meet each other, to compare and contact, according to the open spirit of the IAVS.

Finally, I feel I am obliged at this moment to say something about the device I chose for this symposium: *Divisae arboribus patriae* (to all trees their native lands allotted are). It is a verse by Vergil, the Roman poet who wrote the Georgics in the 1st century BC. It has a deep geobotanical meaning because it summarizes, in a certain way, the phenomena of the biogeographical and ecological diversity of the terrestrial plants, the major aim of our research; it could be even a good motto for the IAVS!

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