III. Notes

The Creation of Societies for the Study of Prehistory and Their Role in the Formation of Prehistoric Archaeology as a Discipline, 1867–1929

Matthew R. Goodrum
Virginia Tech
(mgoodrum@vt.edu)

By the closing decades of the nineteenth century the study of human prehistory had achieved considerable prominence throughout Europe as archaeologists, paleontologists, and geologists made even more remarkable discoveries about the earliest periods of human history, and the reading public was presented with a hitherto unimaginable portrait of their earliest ancestors.

Archaeology itself had undergone significant transformations, and the antiquarian research of the seventeenth and eighteenth centuries had developed into the modern science of archaeology by the early nineteenth century. But the rise of prehistoric archaeology as a distinct discipline within archaeology, with its own particular research problems and methods, is all the more interesting, since the very idea of a period of human prehistory was only recognized during the first half of the century.

Historians of archaeology have explored the development of prehistoric archaeology during the nineteenth century through its primary investigators, their discoveries, and their research methods (Daniel 1962; Grayson 1983; Coye 1997; Rowley-Conwy 2007). In general, while the professionalization and institutionalization of archaeology has been examined by a number of scholars (Levine 1986; Chapman 1989; Emmerichs and Kehoe 1990), the professionalization and institutionalization of prehistoric archaeology as a distinct discipline has been given less attention (although see Richard 1992; Kaeser 2001). The formation of scientific societies devoted specifically to the study of prehistory was an important step in the process of the formation of prehistoric archaeology as a discipline with a unique professional identity. These organizations marked prehistoric archaeology as a field of study with its own particular objectives, methods, and interests that set it apart from other areas of archaeological research.

Prehistory societies of various kinds began to be founded in the 1870s, and during the following half-century numerous societies appeared throughout Europe. Prehistory societies were established at a time when other institutions, such as museums and chairs in universities, were also being created. The construction of institutions devoted specifically to prehistoric research reflects the significant increase in the interest in human prehistory among scientists as well as among the public, beginning in the 1860s.

The dramatic discoveries of Ice Age flint artifacts, and the delineation of the Paleolithic, Neolithic, Bronze, and Iron Ages during the middle decades of the nineteenth century sparked considerable interest in the further exploration of prehistory among scientists. They recognized that specialized institutions, devoted to prehistoric research, would be valuable not only for the promotion of further discoveries, but also as vehicles for the collaboration and the dissemination of new ideas about prehistory, through meetings and publications sponsored by these institutions. Such institutions often
played a role in organizing and conducting excavations in the field, and in facilitating the formation of museum collections.

The founding of prehistory societies during the late nineteenth and early twentieth centuries also corresponds with broader trends in the natural sciences towards increasing specialization and professionalization, which often went hand-in-hand with the creation of specialized scientific societies, at both national and regional levels. Thus, the founding of the earliest societies, dedicated to the study of prehistory, were important events in the social and intellectual history of prehistoric archaeology and anthropology in Europe.

These prehistory societies also offer the historian the opportunity to investigate the geography of prehistoric research. There was an interesting geographical and chronological process of diffusion that occurred during the end of the nineteenth and the beginning of the twentieth centuries. Prehistory societies do not appear in all parts of Europe at the same time. Some countries took an early lead while other countries lagged behind (and in some cases recognized that they had fallen behind). Also, while in some places national institutions prevailed, in other places local regional prehistory societies were influential centers of research. By tracing the chronology and the geography of the founding of prehistory societies we can gain useful insights into the spread of a professional interest in prehistoric archaeology and anthropology in different parts of Europe that fostered local research, education, debate, and the formation of important museum collections.

For those interested in this subject it quickly becomes obvious that astonishingly little information is available in English about the vast majority of these societies, and in some cases even very basic information about them is extremely difficult to find in any language. What has been written about these societies tends to be only in the language of the country in which the institution existed, which means any systematic survey of the formation of prehistory societies in Europe requires the historian to consult material in a wide range of languages.

This paper is designed to be a reference resource on the earliest prehistory societies. It is not a research article and offers little analysis. Rather it is intended as a resource that makes available the basic information about prehistory societies in Europe. It offers a general historical overview of the founding of prehistory societies and attempts to lay a foundation for future research. I have tried to identify as many prehistory societies as possible but I do not claim that this is a complete list, and it is also important to recognize that other institutions existed during this period that included prehistory within the purview of their research, but not as their primary objective.

The First Prehistory Societies

The first major professional society, devoted specifically to the scientific study of prehistory, was the Congrès international d’anthropologie et d’archéologie préhistoriques. The idea of holding an international congress devoted specifically to prehistoric anthropology and archaeology, was suggested by Gabriel de Mortillet, Édouard Lartet, and a number of their colleagues. Lartet and de Mortillet were members of that group of French archaeologists, who between 1858 and 1865, provided definitive evidence for the existence of humans during the Pleistocene period. Their discoveries closely followed other dramatic developments in prehistory, such as the formulation of the Three Age System by Scandinavian archaeologists earlier in the century, and the discovery of prehistoric lake dwellings in Switzerland in the early 1850s. These developments inspired a burst of new excavations, and renewed debate throughout Europe, and as well, led to the publication of a great many books on European prehistory.

1 It would be cumbersome to provide translations for all the societies mentioned in this paper. The names of most French, Spanish, and Italian institutions should be decipherable since the relevant terms are similar to English. In German, Gesellschaft translates to society, while Vorgeschichte and Urgeschichte are both used to refer to prehistory.
De Mortillet and Lartet not only recognized that prehistoric research differed in significant ways from other kinds of archaeological investigations, but also, that prehistory did not belong to traditional geological or paleontological studies. They recognized that a new discipline, requiring new institutions, was emerging. The idea of holding a congress devoted to prehistoric research emerged from the meeting of the Société Italiana di Scienze Naturali, held in September 1865 in the Italian city of Spezzia. During a special session, there was general agreement among participants that an international congress on paleoethnology (congrès paléoethnologique international) would be held the following year, as part of the regular meeting of the Société suisse des sciences naturelles, in Neuchâtel in Switzerland. It was not until the second meeting of the congrès paléoethnologique international in Paris in 1867, that these meetings were designated the Congrès international d’anthropologie et d’archéologie préhistoriques (see Capellini 1907: 14–18; Nenquin 2001).

These congresses were remarkable in that they were truly international in their membership right from the beginning, and aimed at bringing together scientists from across Europe. Like The British Association for the Advancement of Science and other similar organizations, these congresses were held in a different European city every meeting, thus making them accessible to a broader range of scientists than if they were held at a single location. The congresses brought together geologists, archaeologists, and other scientists from most European countries, so as to discuss recent developments and problems in prehistoric archaeology and anthropology, and they had a profound impact on the early development of prehistoric research in Europe. The Compte rendu published for each congress, beginning in 1867, were a valuable mechanism for disseminating the results of new excavations and research, and for establishing the professional boundaries of the new discipline. Fourteen congresses met between 1866 and 1912, ceased when World War I began, and then did not resume again until 1930.

In 1869, not long after the formation of the Congrès international d’anthropologie et d’archéologie préhistoriques, German physician, biologist, and anthropologist Rudolf Virchow established an institution devoted to anthropology and prehistoric archaeology in Berlin. His creation, the Berliner Gesellschaft für Anthropologie, Ethnologie und Urgeschichte, became a center of anthropological and prehistoric research, and promoted these new disciplines within various German states, in competition with French institutions. The society began to publish its Verhandlungen in 1870 and other publications soon followed (Saherwala 1995; Andree 1969). Virchow was also instrumental in founding the Deutsche Gesellschaft für Anthropologie, Ethnologie und Urgeschichte, in the city of Mainz in 1870 (Degen 1968).

Meanwhile, in Munich, Bavaria, anatomist and anthropologist Johannes Ranke founded the organization of the Münchener Gesellschaft für Anthropologie, Ethnologie und Urgeschichte. A prominent figure in prehistoric research in Munich, Ranke taught at the Ludwig-Maximilians-Universität, was editor of the Archives für Anthropologie, and director of the anthropology and prehistory collections at the city’s museum. Ranke also edited the society’s journal, the Beiträge zur Anthropologie und Urgeschichte Bayerns, which began publication in 1876.

Virchow, who was involved in many scientific institutions throughout Germany, also encouraged the formation of the Niederlausitzer Gesellschaft für Anthropologie und Urgeschichte, located in the city of Calau, in 1884, under the leadership of local physician and prehistorian, Ewald Siehe. In 1892 Siehe was succeeded by another local prehistorian, Hugo Jentsch. The society began publishing the results of its members’ prehistoric research in Mittheilungen in 1885. Similarly, in the city of Görlitz, another group of local prehistorians, led by Ludwig Feyerabend, founded the Gesellschaft für Anthropologie und Urgeschichte der Oberlausitz in 1888. Like its fellow local prehistoric societies, and beginning in 1890, it published a journal, the Jahreshefte der Gesellschaft für Anthropologie und Urgeschichte der Oberlausitz. This rapid proliferation of scientific societies devoted to prehistory and anthropology in so many German states, not only reflected the dynamic intellectual atmosphere of Germany at this time and its lack of political unity, but also the prolific number of important regional scientific centers that existed in the German states.

At this same time, the significance of prehistoric research was also recognized in Austria. In 1878 the
Österreichische Akademie der Wissenschaften formally created a Prähistorische Kommission to conduct and promote research into the prehistory of the region. The effort to create such an institution within the Adademie was led by Christian Gottlieb Ferdinand von Hochstetter, professor of mineralogy and geology at Kaiserlich-königliche Polytechnisches Institut [Imperial-Royal Polytechnic Institute] and superintendent of the Kaiserlich-königliche Naturhistorisches Hofmuseum [Imperial Royal Natural History Court Museum], he was also a member of the Austrian Academy of Sciences. In 1888 the Prähistorische Kommission began publishing an annual Mitteilungen that communicated the results of its research to scholars throughout the Austrian Empire and beyond (Mader 2005, 2006).

While France did not yet possess their own national prehistory society, the place of such an institution was largely fulfilled by the Congrès international d’anthropologie et d’archéologie préhistoriques as well as by other institutions, such as the Société normande d’études préhistoriques, founded in 1893 by a group of local scholars interested in prehistory and led by the artist and archaeologist Léon-Marie Coutil in collaboration with the historian Amand Montier. Other regions in France had local archaeological or antiquarian societies where prehistoric, Roman, and medieval archaeology was undertaken, but the presence of a society in Normandy dedicated solely to prehistory reflects the huge and local interest in regions abundant prehistoric sites, that had long attracted the attention of archaeologists and historians. The Société normande d’études préhistoriques remained a venue for the study of Norman prehistory throughout the twentieth century and through the society’s Bulletin, which began publication in 1893, its research became known to archaeologists elsewhere (Ducrocq 2003).

By the close of the nineteenth, century prehistoric archaeologists in Western Europe were meeting regularly through the auspices of the Congrès international d’anthropologie et d’archéologie préhistoriques, while local anthropology and prehistory societies promoted research and the exchange of ideas throughout the German states and Austria. Yet, throughout much of Europe archaeologists interested in prehistory were either members of general archaeological societies, or of museum or natural history societies. However, after the turn of the century numerous new prehistory societies appeared from Spain at one end of Europe, to Poland at the other. These new societies reflected the growing status and significance of prehistoric archaeology as a discipline, were also the result of recognition, on the part of local scientists and leaders, that national and local institutions were important to the development of prehistoric research in their own countries.

Prehistory Societies After the Turn of the Century

Following the initial period of the establishment of prehistory societies in the 1870s and 1880s there was something of a hiatus before another round of institution formation began. In some cases these new societies competed with or supplemented existing societies. But in many cases prehistory societies were founded in countries and regions where prehistoric archaeologists had hitherto belonged to older archaeological societies or even to natural history societies.

In 1903 a group led by Paul Raymond and Emile Rivière founded the Société préhistorique de France, the first national prehistory society in the country. The society published a Bulletin, beginning in 1904, as well as a Compte rendu of its meetings, the first volume of which appeared in 1905. The society changed its name to the Société préhistorique française in 1911. It quickly became a prolific and influential institution that sponsored and promoted prehistoric research in France and abroad (Soulier 1991; Boccaccio 2007) and also sponsored an annual meeting called the Congrès préhistorique de France. The first congress was held in the town of Périgueux in 1905 and unlike the Société préhistorique de France, which was located in Paris, the Congrès préhistorique de France was held in a different city each year, to make it easier for archaeologists and anthropologists throughout the country to be able to participate in the wider community of prehistoric researchers in France (Soulier 2004; Evin 2007). Annual congresses met between 1905 and 1913 and a Compte rendu was published for each meeting, but the congresses were suspended between 1914 until 1930 as a consequence of World War I, and were resumed again in 1931.
Just as prehistorians were founding a national prehistory society in France, a similar process was occurring in Switzerland. One of the first countries that very early on had contributed to the development of the new science of prehistoric archaeology, especially following the discovery and investigation of the Swiss lake dwellings during the last half of the nineteenth century, the Société suisse de préhistoire (Schweizerische Gesellschaft für Urgeschichte) was founded in 1907, under the instigation of Jakob Heierli, professor of prehistory at the University of Zurich. It brought together prehistoric archaeologists throughout Switzerland and encouraged research in the country on the model of the kind of investigations being conducted in France and Germany. Papers by the society’s German and French speaking members began to be published in a Jahresbericht (Annuaire) in 1908 (Sauter 1982).

It is significant that both France and Switzerland, whose prehistorians were among the founders and early supporters of the Congrès international d’anthropologie et d’archéologie préhistoriques, each founded national prehistoric societies at about the same time. While the Congrès international d’anthropologie et d’archéologie préhistoriques continued to hold meetings and remained an important institution throughout the early twentieth century, clearly there was a perceived need for national institutions as well, perhaps to compete with the many German societies for anthropology and prehistory.

British archaeologists had long explored their island’s prehistoric monuments and during the nineteenth century many contributed to the application and expansion of the Three Age System to British prehistory. British geologists and archaeologists had been instrumental in the research that established the existence of humans during the Pleistocene period, and it was Sir John Lubbock who introduced the terms Palaeolithic and Neolithic as chronological divisions of the Stone Age. Most British investigators of prehistory belonged to one or more of the prestigious scientific institutions of the nation, such as the Society of Antiquaries, the Geological Society of London, or any number of regional archaeological societies. It is noteworthy then, that it was not until 1908 that a society devoted specifically to prehistoric research was established in Britain. In that year a group led by the young archaeologist Graham Clarke and William Allen Sturge, a physician, who after retiring in 1907 devoted his time to prehistoric archaeology, along with topographer William Alfred Dutt and H. H. Halls, met to discuss forming a prehistory society. The result was the Prehistoric Society of East Anglia, which initially held its meetings in the town of Norwich. The society began to hold regular meetings in 1908 and began to publish its Proceedings in 1911. Largely through the efforts of the talented young Clarke and some other prominent early members, such as James Reid Moir, the society gained in prominence, and in 1935 it changed its name to The Prehistoric Society and became a truly national institution.

Just as France, Switzerland, and Britain were creating prominent national prehistory societies German prehistorians were also forming new organizations that were less local, and more national in scope, and that now competed with the older societies formed for the study of anthropology and prehistory. In 1909 Gustaf Kossinna, professor of prehistory at the Friedrich-Wilhelms-Universität in Berlin, formed the Deutsche Gesellschaft für Vorgeschichte. This institution competed with the more prestigious Berliner Gesellschaft für Anthropologie, Ethnologie und Urgeschichte, and clearly was meant to also vie with the national Deutsche Gesellschaft für Anthropologie, Ethnologie und Urgeschichte, although historians have not explored the politics and dynamics of the relationships between these organizations. The society published the influential journal Mannus: Zeitschrift für Vorgeschichte between 1909 and 1931 with Kossinna as its editor. Yet another German prehistory society, the Gesellschaft für Vorgeschichtliche Forschung, was founded in 1924, comprised prominent members from across Germany and abroad, including Max Ebert (professor of prehistory at Königsberg from 1922–1924 and later professor of prehistory at the Friedrich-Wilhelms-Universität in Berlin from 1927–1929), Oscar Almgren in Upsala, G. Karo in Halle, B. Meissner in Berlin, Hugo Obermaier in Madrid, and Hermann Ranke in Heidelberg. Its primary publication was the Vorgeschichtliches Jahrbuch für die Gesellschaft für Vorgeschichtliche Forschung, which began publication in 1926 with Max Ebert as its editor.

Austria too participated, during this period, by founding prehistory societies. In 1913 Oswald Menghin, a prehistoric archaeologist who had just become a Privatdozent or lecturer at the
University of Vienna, organized the *Wiener Prähistorische Gesellschaft*. The society published the *Wiener prähistorische Zeitschrift* from 1914 to 1943 and was a leading institution supporting prehistory research in Austria.

Prehistoric archaeology and anthropology achieved greater recognition elsewhere in Central Europe at this time as well. The First World War brought research to a halt throughout Europe, but after the political and social upheaval caused by the defeat of the German and Austrian empires, new nations and new institutions began to appear throughout the region. For example, the *Společnost československých praehistoriků* (Czechoslovak Prehistoric Society) was founded in the newly created nation of Czechoslovakia in 1919, becoming a focal point for prehistory research and reviving the publication of the journal *Obzor praehistorický* (*Prehistoric Outlook*) in 1922. A journal of the same title had been published by the *Společnost přátel starobylosti českých* (Society of Friends of Bohemian Antiquity) from 1910 until 1914, but had ceased with the beginning of the war. Meanwhile, in Poland Józef Kostrzewski was instrumental in establishing the *Polskie towarzystwo prehistoryczne* (Polish Prehistoric Society) in 1920. Kostrzewski had studied with Gustave Kossinna at Berlin and had recently become professor of prehistoric archaeology at the newly founded University of Poznan.

At the other end of Europe, Spanish anthropologists and archaeologists realized that they had fallen behind in the field of prehistoric research when compared to other countries. In fact, there was general recognition, that all of the sciences had languished in Spain, and so in 1907, King Alfonso XIII signed a royal decree establishing the *Junta para Ampliación de Estudios é Investigaciones Científicas*. This body was responsible for rehabilitating the study of the sciences and technology in Spain, and also to encourage industrialization and modernization. The creation of the *Junta para Ampliación de Estudios é Investigaciones Científicas* established the conditions necessary for several Spanish scientists with an interest in prehistory to establish an institution devoted to prehistoric archaeology. The Spanish geologist and archaeologist Eduardo Hernández Pacheco was the leader of a group of naturalists from the *Sociedad Española de Historia Natural*, including Enrique de Aguilera and Juan Cabré Aguiló, who successfully lobbied for the formation of a commission that would sponsor prehistoric research. In 1912 the *Comisión de Investigaciones Paleontológicas y Prehistóricas* was founded within the *Museo Nacional de Ciencias Naturales* in Madrid, under the auspices of the *Junta para Ampliación de Estudios é Investigaciones Científicas*. The historian and art collector, the Marqués de Cerralbo, originally led this prehistory commission, and Pacheco remained one of its most influential members. Besides encouraging and sponsoring research and offering a venue in which Spanish researchers could interact and collaborate, the commission also published the *Trabajos de la Comisión de Investigaciones Paleontológicas y Prehistóricas* in 1914, but the title changed to the *Memoria de la Comisión de Investigaciones Paleontológicas y Prehistóricas* in 1915 (de la Rasilla Vives 1997).

While the commission was an important institution for the advancement of prehistoric research in Spain it did not have the stature of a full scientific society. The need for a society dedicated to anthropology and prehistory prompted the geologist and anthropologist Francisco de las Barras de Aragón, along with physical anthropologist Manuel Antón Ferrándiz, and Rafael Salillas, to found the *Sociedad Española de Antropología, Etnografía y Prehistoria* in Madrid in 1921. The archaeologist José Ramón Mélida became its first president and its early members included naturalists and physicians, in addition to anthropologists and archaeologists. Like other prehistory societies it published a journal, the *Actas y Memorias* that first appeared in 1922 (Sánchez Gómez 1990).

As with elsewhere in Europe, regional prehistory societies also began to appear in Spain. In Catalonia the archaeologist Telesforo de Aranzadi led a group from the University of Barcelona and founded the *Asociació Catalana d’Antropologia, Etnologia i Prehistoria* in 1922. Their began the publication of *Bulletí* in 1923. In Valencia the *Servicio de Investigaciones Prehistóricas de Valencia* was established in 1927 by archaeologist Isidro Ballester. It began to publish the journal *Archivo de Prehistoria Levantina* in 1928 (Bonet Rosado 2002; de Pedro Michó 2006; Hernández Pérez and Enguix Alemany 2006). Following the formation of these regional societies, in 1929, the city council of Madrid established the *Servicio
de Investigaciones Prehistóricas, and in the same year, and in conjunction with this, created the Museo Prehistórico Municipal. The anthropologist and archaeologist José Pérez de Barradas acted as director of both institutions, and greatly contributed to raising the public and popular profile of prehistory, and to solidifying Spain’s place as a center for prehistoric research (de Carrera Hantana and Martín Flores 1997; Martín Flores 2001).

And Europe was not the only part of the world where prehistory societies were being founded. In 1921, the American Anthropological Association, in collaboration with the Archaeological Institute of America, jointly established the American School of Prehistoric Research, housed at the Peabody Museum at Harvard University. This appears to be one of the first institutions devoted exclusively to the study of prehistory in the United States and it played an important role in encouraging prehistoric research among American scientists. It began to publish a Bulletin in 1926 to publicize the results of the excavations the school sponsored. In addition to the United States, a prehistory society also emerged in Africa in the 1920s. The Société de préhistoire du Maroc was founded in Casablanca in 1926 and the first volume of its Bulletin appeared in 1927.

Implications

This paper is not meant to provide a detailed analysis of the institutions that were formed during the late nineteenth and early twentieth centuries for the study of prehistory. It can only direct the attention of historians and sociologists to certain patterns and problems that deserve further investigation. The ideals of an international cooperative scientific community may have contributed to the rationale behind the creation of the Congrès international d’anthropologie et d’archéologie préhistoriques, but it may also have been the practical result of the fact that there were not that many scientists in the 1860s whose research focused primarily on prehistory, and those scientists who did study prehistory came from a variety of different disciplines. While these international congresses offered an important venue for the meeting and exchange of information between researchers in Europe it is significant that prehistory societies were sprouting up in several major Germany cities in the 1870s. This signifies the interest German anthropologists and archaeologists had in prehistory as well as their recognition that prehistoric anthropology and archaeology was distinct from other branches of anthropological and archaeological research. The creation of prehistory societies in Germany, as well as in Austria, may also reflect the competition German scientists felt toward the French dominated Congrès international d’anthropologie et d’archéologie préhistoriques, but they also reflect the political disunity of Germany at the end of the nineteenth century.

The formation of prehistory societies in the 1870s and 1880s reflects the emerging importance of prehistoric archaeology and anthropology as a distinct discipline with its own institutional and professional identity. Clearly, the period between 1870 until 1900 was one of expansion and growth, both in the numbers of researchers studying human prehistory and in the number of geographical locations where prehistoric archaeology and anthropology was attaining prominence. The evidence for this lies in the number of new national, and to some extent local, prehistory societies that were founded between 1900 and the beginning of World War I. Major national prehistory societies appear in France, Switzerland, Britain, Germany, and Austria during this period. But it is equally interesting that similar institutions were not formed in Italy, Spain, or Portugal during the same period, and even though prehistoric research was being undertaken in these countries, it was often under the auspices of general archaeological or natural history societies. The reasons for the delay in the formation of prehistory societies in these countries need to be examined by historians.

It is also significant that with the end of the First World War, and the creation of the new Eastern European states, the formation of prehistory societies in Poland and in Czechoslovakia soon followed. This indicates the extent to which the professionalization and institutionalization of prehistoric archaeology and anthropology had extended beyond Western Europe, but also the extent to which researchers in this part of Europe felt it was important to have local institutions that conducted local
research and served local needs (for teaching, research, or the formation of collections and museums). Local intellectual, social, and political factors help to explain why the formation of prehistory societies in Poland and Czechoslovakia but also in Spain came so much later than in the rest of Europe, and why it was apparently not until after the Second World War that similar institutions were founded in Italy. The broad contours of the geography and chronology of the creation of institutions in Europe devoted to the study of prehistory may also help in analyzing more specifically local trends in prehistoric research. The fact, as we have seen, that all of these institutions not only held meetings and encouraged research, but also published journals must also be recognized as an important element in the communication of new discoveries, the promotion of new research, and the increasing professionalization of the field. The impact of so many new publications disseminating so much new knowledge also needs to be examined more thoroughly by historians. By investigating the research conducted not only by individual archaeologists but also by institutions as a whole we may also gain a greater understanding of the degree to which research questions and methods were shared among prehistoric archaeologists and anthropologists across Europe, or if important national, and even regional differences, existed. This could tell us much about the emergence of prehistoric archaeology and anthropology as a discipline.

References


