

microscopically to certain organic forms is certainly most remarkable. The literature of this subject, which includes many papers by Sir William, is quite voluminous, but the chief facts are summed up in his book entitled *The Dawn of Life*, which appeared in 1875.

Sir William was also a prolific writer of popular works on various geological topics. Among these may be mentioned his *Story of the Earth and Man*, his *Fossil Men and their Modern Representatives*, his *Meeting Place of Geology and History*, and his *Modern Science in Bible Lands*. These books, all written in a very entertaining style, had a wide circle of readers and many of them passed through several editions.

Other volumes from his pen, as well as many papers contributed to various religious publications, treated of the relation of science and religion. One of the earliest of these was entitled *Archæia*, and dealt with the relations of historical geology to the Mosaic account of the Creation. In others he considered the relation of the evolutionary hypothesis to religious thought. He was always, but especially in his earlier years, a strong opponent of the Theory of Evolution and vigorously combated it. Being above all things deeply religious and considering the evolutionary explanation of the origin of the universe to be contrary to the teachings of Scripture, he refused to accept it. This was, after all, but the weakness of a strong man. It did not, however, tend to enhance his reputation among men of science, who are commonly willing to let truth work out its own results, knowing that apparent contradictions are merely indications that the whole truth has not been discovered.

These works on the relation of science and religion met a popular need and were of great comfort to many a pious soul who feared that the whole framework of faith was being swept away by the advancement

of science. Their value, however, was not permanent and they are not the works by which Sir William Dawson will be remembered. His reputation is founded on the great contributions to our permanent stock of knowledge which he has made and which are embodied in his works on pure science, representing achievements of which any man might well be proud.

Sir William had a courteous, or rather a courtly manner, based on a genuine consideration for all. He was respected and beloved by all who knew him and especially endeared himself to all who studied under him. The preëminent note of his character was simplicity and singleness of purpose. His loss will be felt especially in the institution with which he was long connected, but his name has been perpetuated in connection with the geological department of his University by the establishment of a second chair in geology, to be known as the Dawson Chair, which has just been endowed in his memory by one of the great benefactors of the University, Sir William Macdonald.

FRANK D. ADAMS.

MCGILL UNIVERSITY,  
December 8, 1899.

*EXTENT OF INSTRUCTION IN ANTHROPOLOGY IN EUROPE AND THE UNITED STATES.*

REGULARLY authorized instruction in anthropology dates from the second half of the present century. Before passing the threshold of the next, it might be well to have the benefit of any inspiration which may be drawn from the progress of this new science as a branch of university discipline.

The time, the closing of a century, for such a review is, of itself, opportune. Even if it were not so, occasion would not be wanting in the independent movement in different countries looking toward the establishment of chairs and lectureships of anthro-

pology. Professor W J McGee's efforts along that line in this country are noteworthy. Professor Wilhelm Waldeyer in his inaugural address about a year ago as Rector of the University of Berlin strongly emphasized the desirability of instituting chairs of anthropology in the universities of the German Empire.\*

The Anthropological Section of the British Association for the Advancement of Science at the Bristol meeting, September, 1898, appointed a Committee to ascertain "The present state of anthropological teaching in the United Kingdom and elsewhere." Professor E. B. Taylor was made Chairman of this Committee, and Mr. H. Ling Roth, Secretary. Funds were voted for carrying on the investigation. The results of this Committee's work are, no doubt, forthcoming in the report of the Dover Meeting of the British Association which was to be held in September, 1899.

The substance of this article was presented by the writer before the Anthropological Section of the American Association for the Advancement of Science, at Columbus, August, 1899, and led to the appointing of a committee to consider ways and means of furthering the instruction in anthropology in our own institutions of learning, and to report at the Christmas meeting. The committee appointed by the Chair are W J McGee of Washington, Frank Russell of Cambridge, and George Grant MacCurdy of New Haven.

To go back half a century, Professor Serres held the Chair of Anatomy at the Natural History Museum of Paris when it became the Chair of Natural History of Man, or *Anthropology*, as Serres himself called it in announcing his course.

In 1867, Paul Broca opened a laboratory of anthropology in connection with the

*Société d'Anthropologie de Paris*, then already eight years old. This laboratory became part of the *École pratique des Hautes Études* the next year (1868). As early as 1870, Broca had already established a regular course of lessons which was kept up until 1876, when it was merged in the newly-founded *École d'Anthropologie de Paris*. The latter was the first and remains the only school of its kind in the world.

Across the Channel, Sir William Flower had this to say in 1881: "In not a single university or public institution throughout the three kingdoms is there any kind of systematic teaching, either of physical or of any other branch of anthropology, except so far as comparative philology 'may be considered as bearing upon the subject.'"\* In 1894 Sir William Flower could still say: "A professorship of Anthropology does not exist at present in the British Isles."† Instruction in some branches of anthropology was already being given, however, both at Oxford and Cambridge.

At Oxford, E. B. Tylor was made University Professor and Reader of Anthropology, December 31, 1898. Professor Tylor is also keeper of the University Museum. As he was the first Instructor in Anthropology (since 1883) in the British Isles, so is he the first Professor and the only one. Arthur Thomson, University Professor of Human Anatomy, gives instruction in physical anthropology, and Mr. Henry Balfour, Cur. Pitt-Rivers Museum, lectures on: 'Arts of Mankind and their Evolution.'

At Cambridge, Dr. Haddon, F.R.S., and Mr. W. H. L. Duckworth have, for some time, been recognized teachers of anthropology, and a lecturer on the subject has

\* Presidential address to the Department of Anthropology, British Association, for the Advancement of Science (York meeting).

† Presidential address to the Section of Anthropology, B. A. A. S. (Oxford meeting).

\* Ueber Aufgaben und Stellung unserer Universitäten seit der Neugründung des deutschen Reiches. Berlin, 1898. Druck von W. Büxenstein.

just been appointed. Alexander Macalister, Professor of Human Anatomy, has, for a number of years, found time to give instruction in physical anthropology.

Sir William Turner of Edinburgh (Professor of Human Anatomy) delivers a special course of lectures, with practical demonstrations, in physical anthropology. A Museum of Anthropology was recently established at the University of Aberdeen; so that instruction in anthropology may, in all probability, be given there.

In Ireland, Dr. C. R. Browne of Trinity College, Dublin, gives demonstrations in anthropometric methods. In addition to the work done in the Anthropometric Laboratory, every year, the instruments are taken to some selected district in Ireland and a systematic study of the inhabitants is made. The Royal Irish Academy makes yearly grants to the committee in charge of this work, the character of which may be ascertained from Dr. Browne's recent report on 'The Ethnography of Clare Island and Inishturk, Co., Mayo.'\*

Germany has but one professorship of anthropology—that at Munich held by Johannes Ranke. To quote Professor Wilhelm Waldeyer who speaks especially for Munich and Berlin:

"Nur in München ist ein Professor ordin. für Anthropologie angestellt; derselbe hat auch ein besonderes Institut und einen Assistenten, Hr. Dr. Birkner. Sie wissen, dass Johannes Ranke der Professor ordin. ist.

"An den übrigen deutschen Universitäten werden zwar anthropologische Vorlesungen gehalten, aber wohl nur von Professores extraordinarii und Privat Docenten, ohne besonderen Lehrauftrag seitens der Regierung, rein als Privatsache, und es bestehen keine Institute für Anthropologie.

"Hier in Berlin lesen seit einigen Jahren:

"(1) Dr. von Luschan, Titular professor,

\* Proc. Roy. Irish Acad. 3d ser., Vol. V., No. 1, Dec., 1898.

über physische Anthropologie und über Ethnologie; ferner gibt er im Völkermuseum (ganz unabhängig von der Universität), anthropologische und ethnographische Uebungskurse. (2) Professor Dr. Wilhelm Krause, Laboratoriumsvorstand and der anatomischen Anstalt, liest über 'Rassenkunde' und gibt Uebungen in 'anthropologischer Messungskunde.' (3) Dr. Seler, Geschichte und Alterthumskunde Mexico's. (4) Dr. Huth, Geschichte und Völkerkunde Sibiriens.

"Wie es an den andern Universitäten ist, weiss ich nicht, abgesehen von dem, was ich vorhin gesagt habe."

Professor Ludwig, of Bonn, who occupies the Chair of Zoology and Comparative Anatomy, gives, in addition, a course in Physical Anthropology. Emil Schmidt (Prof. ordin. hon.) of the University of Leipzig, offers 'Anthropologie und Ethnologie' together with 'Anthropologische Uebungen.'

At Marburg i. H., P. Kretschner (Professor extraordin.) lectures on 'Indogermanische Völkerkunde und Urgeschichte Europas'; at Halle, Professor Kirchhoff, offers, among other courses, one in 'Anthropogeographie'; and at the Stuttgart Königl. Technische Hochschule, Professor Karl Benjamin Klunzinger gives instruction in anthropology and hygiene, in addition to zoology.

No French university offers a course in anthropology with the possible exception of Lyons where Ernest Chantre is Professor of Ethnology. This seems strange when we remember that the land of Buffon, Broca, de Quatrefages, and de Mortillet is looked upon as a pioneer in the anthropological sciences, and has trained a majority of all who are now teaching the subject. Channels of instruction have been found other than the universities—namely, the *École libre d'Anthropologie de Paris* and the *Museum d'Histoire Naturelle* at the *Jardin des Plantes*.

The École d'Anthropologie offers nine courses by as many professors. They are as follows :

Matthias Duval ; *Anthropogénie, Embryologie.*

André Lefèvre ; *Ethnographie et Linguistique.*

Letourneau ; *Sociologie*

Hervé ; *Ethnologie.*

Manouvrier ; *Anthropologie physiologique.*

Capitan ; *Anthropologie préhistorique.*

Laborde ; *Anthropologie biologique.*

Mahoudeau ; *Anthropologie zoologique.*

Schrader ; *Géographie anthropologique.*

A monthly *Revue* is published by the professors. The Laboratory of Anthropology which forms a part of the system called *École pratique des Hautes Études en Sorbonne* very naturally finds a home at the *École d'Anthropologie*.

The Chair of Anthropology at the *Museum d'Hist. Naturelle* is occupied by Prof. Hamy. His colleague is Dr. Verneau, who also offers courses in anthropology at the *École Coloniale* and the *Hôtel de Ville*.

The Universities of Italy make a good showing. Giuseppe Sergi is Professor of Anthropology at Rome, and Director of the Anthropological Cabinet, and Giustiniano Nicolucci fills a similar position at Naples, where Drs. Penta and Zuccarelli are Docents for Criminal Anthropology. The *Regio Istituto di Studi Superiori Pratici e di Perfezionamento*, Florence, has the distinction of a professor of anthropology in *Paolo Mantegazza*. In three other Italian Universities, the subject is receiving attention. Professor Severi is the authorized Docent for Legal Anthropology at Genoa ; Professor Lombroso, for Criminal Anthropology at Turin ; and Tito Vignolo for Anthropology and Comparative Psychology at Milan.

Spain and Portugal have, each, one chair of anthropology—at Madrid and Coimbra, respectively. At Madrid, Manuel Antón y

Ferrándiz is Professor *Cathedratico* of Anthropology and the Natural History of Man ; at Coimbra, Bernardino Luis Machado Guimarães is Professor *Cathedratico* of Anthropology and Paleontology.

Dr. Rudolph Martin, sometime instructor in Anthropology at the University of Zurich, Switzerland, has just been promoted to an assistant professorship, Dr. Martin is also Docent for Anthropology in the Polytechnic School of Zurich.

Hungarian, German and Bohemian Universities all are contributors to anthropology in the Empire of Austria-Hungary :

Aurel Török, Professor ordin., Anthropology and Ethnology, and Director of the Anthropological Museum, Budapest ; Lubor Niederle, Professor ordin., Anthropology and Prehistoric Archæology, Prague ; and Moriz Hoernes, Professor extraordin., Prehistoric Archæology, Vienna. At the latter University, Dr. Michael Haberlandt is Docent in General Ethnography, and Dr. Phillip Paulitschke's lectures are ethnographical although his title is Docent in Geography.

A chair of geography and anthropology was recently created at the Imperial Academy of Sciences, St. Petersburg ; D. N. Anutchin is the occupant. At the University, E. J. Petdri is Professor of Geography and Ethnography and Director of the University Geographical Anthropological Cabinet.

In Moscow, D. N. Anutchin is Professor of Geography and Ethnography and Director of the University Anthropological Museum ; and Dr. N. N. Charuzin is Docent for Ethnography.

In Holland, there is no professorship of anthropology, so far as appears. J. J. M. de Groot is Professor of Ethnography at Leyden ; Dr. G. J. Steinmetz is Instructor in Ethnology at Utrecht ; and Professor G. Jelgersma of Amsterdam lectures on Criminal Anthropology.

Monsieur E. Houzé is Professor of Anthropology at the *Université libre de Bruxelles*, Belgium. The course given by Professor Houzé was inaugurated in 1884. At the new University, Brussels, Professor G. Delbaste gives lectures on Criminal Anthropology.

For Scandinavia, there is a chair of northern archæology at the University of Christiania occupied by Professor O. Rygh. In the same Faculty, Yngvar Nielsen is Professor of Geography and Ethnography and Director of the University Museum of Ethnography.

The University of Athens possesses an anthropological museum; Dr. K. Stephanos, the Curator, may possibly give some instruction in the subject.

Mention has already been made of the movement in the United States to give anthropology more general recognition as a branch of university discipline. It has already taken its place in the curriculum of a number of our leading institutions.

In the Peabody Museum of American Archæology and Ethnology at Cambridge, Harvard University has a most suitable habitation for a department of anthropology—extensive collections, laboratories, special library, lecture rooms, all combined under one roof and management, with its own special faculty, endowments, fellowships and scholarships. Frederick Ward Putnam, Curator of the Museum and Professor of American Archæology and Ethnology; Dr. Frank Russell, Instructor in Anthropology; and Roland B. Dixon, Assistant in Anthropology, offer a number of courses, both general and special. An anthropological club holding semi-monthly meetings testifies to the lively interest in the subject at Harvard.

Only a few months ago a professorship of anthropology was created in Columbia University, New York, and Dr. Franz Boas, for several years Lecturer in Anthropology, was promoted to the Chair. The

work of Professor Boas is done in part at the American Museum of Natural History and in part at the Psychological Laboratory of the University, where Dr. Livingston Farrand (Instructor in Psychology) gives courses in ethnology, one of them being half of a general introductory course in anthropology by Drs. Boas and Farrand.

At the University of Chicago, there is a provisional union of sociology and anthropology in a single department. "The differentiation of an independent department of anthropology and ethnology is anticipated." Dr. Frederick Starr is Associate Professor of Anthropology and Curator of the Anthropological Section of Walker Museum.

At New Haven, Yale University has for several years had the benefit of a course in general anthropology based on Ranke's 'Der Mensch.' For this course we are indebted to William G. Sumner, Professor of Political and Social Science. Professor Sumner's generous impulses and admirable fitness, equal to his sense of the University's need, has led him to assume, willingly, extra labor and responsibility. To such men, many a university has been indebted for the growth and present richness of its curriculum, and, many a new science, for its separate and vital existence.

Dr. E. Hershey Sneath, Professor of Philosophy, gives a course entitled 'Philosophical Anthropology,' based on Lotze's *Microcosmus*.

The appointment of George Grant MacCurdy as Instructor in Prehistoric Anthropology at Yale dates from May, 1898. His courses are given at the University Museum, where a Laboratory of Physical Anthropology is being established, and where anthropological collections are being arranged both for students and for the public.

At Clark University, Worcester, A. F. Chamberlain is Lecturer in Anthropology. Assistant Professor W. Z. Ripley (Sociology

and Economics, Massachusetts Institute of Technology, Boston) gives a 'course of one term' in Anthropology at the Institute yearly; and at Columbia University (New York) in the School of Political Science, a course of one term entitled now Racial Demography, being a study of the population anthropologically of Europe and the United States. It was formerly called anthropology, but the title has been changed this year as given.

At the National Capital, some of the universities are making use of the anthropologists connected with the United States National Museum. Thomas Wilson, curator of the Division of Prehistoric Anthropology, lectures at the National University, and Otis T. Mason is lecturer in Anthropology at the Columbian University.

M. M. Curtis, professor of philosophy, Western Reserve University, Cleveland, gives a course of lectures on the history and the main problems and bearings of anthropology, and A. S. Packard, professor of Zoology and Geology, performs a like service for Brown University, Providence. During the month of March, 1899, Professor W J McGee, Ethnologist in charge of the

Bureau of American Ethnology, Washington, D. C., gave, at the State University of Iowa, a course of eleven lectures in general anthropology to large audiences. Such a beginning augurs well for the future growth and development of a recognized branch of instruction.

Instruction in anthropology at the Ohio State University may be said to have a beginning in the work being done by Mr. W. C. Mills, Curator of the Ohio Archæological-Historical Society.

In the death of Professor Daniel G. Brinton, both the University of Pennsylvania and the Philadelphia Academy of Natural Sciences have lost a valued teacher of the anthropological sciences. No one has yet been appointed to take his place.

In order to reduce the above information concerning extent of instruction in anthropology to a more compact form, use is made of the following table.

Of the forty-eight institutions in the thirteen countries giving a place to anthropology in their curricula, eleven are located in the United States; and of the total teaching force of seventy-four, our own country is credited with seventeen. But in the matter

COUNTRIES.	Institutions.	Professors.	Assistant Professors.	Instructors.	Total teaching force.	FACULTIES.
British Isles.	4	1	0	8	9	Natural Science.
Germany.	7	1	2	8	11	Philosophical.
France.	4	11	0	1	12	Philosophical or Faculté de Lettres.
Italy.	6	3	0	5	8	Philosophical; Nat. Sci.; Med.
Spain.	1	1	0	0	1	Science.
Portugal.	1	1	0	0	1	Philosophical.
Switzerland.	2	0	1	1	1	Natural Science.
Austria-Hungary.	3	2	1	1	4	Philosophical.
Russia.	3	1	0	3	3	Natural Science.
Holland.	3	0	0	3	3	Various.
Belgium.	2	1	0	1	2	Medical.
Scandinavia.	1	0	0	2	2	Philosophical.
United States.	11	1	1	15	17	Various.
	48	23	5	48	74	

of professorships, the United States suffers by comparison, being allowed only one out of twenty-three by the strict terms of the title—that at Columbia held by Dr. Boas.

The above table is intended to serve more as a comparison of figures than of forces. To know precisely what is being done for the science in the several countries, one would have to take account of anthropological publications, museums, societies and clubs, as well as of sections of general scientific associations and academies of sciences. Such a compilation is beyond the scope of the present article.

So much for the extent\* of instruction in anthropology as the century closes. The importance of the subject as a branch of university discipline, its terminology and the faculty to which it should belong, have all been touched upon by such authorities as Daniel G. Brinton† of Philadelphia, Friedrich Müller‡ of Vienna, Rudolph Martin§ of Zurich, and Geo. A. Dorsey|| of Chicago.

Professor Brinton made a "brief presentation of the claims of anthropology for a recognized place in institutions of the higher education in the United States" and asked for "the creation in the United States

\* Corrections of and additions to the record are respectfully solicited. The writer is especially indebted to Monsieur le Ministre de l'Instruction publique et des Beaux-Arts, France; and Professors Wilhelm Waldeyer, Rector of the University of Berlin; Alexander Macalister, Cambridge, England; E. Houzé, Brussels; Moriz Hoernes, Vienna; W. J. McGee, Washington, D. C.; W. Z. Ripley, Boston; the Hon. W. T. Harris, U. S. Commissioner of Education; and his Excellency the Royal Prussian Kultusminister.

† Anthropology as a Science and as a Branch of University Education, Phila., 1892.

‡ Die Vertretung der anthropologisch-ethnologischen Wissenschaften an unsern Universitäten, Globus, Bd. 66, S. 245, 1894.

§ Zur Frage von der Vertretung der Anthropologie an unsern Universitäten Globus, Bd. 66, S. 304, 1894.

|| The Study of Anthropology in American Colleges. *Archæologist*, Dec., 1894, Waterloo, Indiana.

of the opportunity of studying this highest of the sciences in a manner befitting its importance." His classification and nomenclature, and his general scheme for instruction in this science acted as a stimulus to discussion on two continents.

Brinton's principal subdivisions are:

I. Somatology—Physical and Experimental Anthropology.

II. Ethnology—Historic and Analytic Anthropology.

III. Ethnography—Geographic and Descriptive Anthropology.

IV. Archæology—Prehistoric and Reconstructive Anthropology.

Professor Müller does not see the need of separating the Geographical Ethnos from the Historic Ethnos, and, therefore, makes three divisions with a professorship for each:

I. Physical Anthropology.

II. Ethnography and Ethnology.

III. Prehistoric Anthropology. The first he would place with the medical faculty, the other two, with the so-called philosophical faculty of the German universities. When the three professors cannot be had—an anatomist for somatology, an ethnologist and linguist for ethnology and ethnography, and a geologist and archæologist for the prehistoric—then Müller would suggest a double division: (1) Physical and Prehistoric Anthropology and (2) Ethnology and Linguistics. This, however, would divide the professorship of Physical and Prehistoric anthropology between two faculties, giving half to the medical faculty and half to the philosophical.

Professor Martin, on the other hand, argues that "die ganze Anthropologie in der naturwissenschaftlichen Abteilung der philosophischen Fakultät ihren natürlichen Platz hat." This seems to be the more logical arrangement and the one adopted practically by every university professing to give instruction in the subject as shown in the table above.

The difficulties of placing anthropology with this faculty or that are themselves evidence of the fundamental character of the science. A branch of instruction that may be claimed by different faculties, and, at the same time, not adequately represented in any, might justly claim title to a faculty of its own.

Anthropology has matured late; has been waiting for the contributions other sciences in the course of their development were bound to make to her; waiting till the prehistoric perspective came to supplement the historic, permitting man to take the same dispassionate view of self as of the rest of nature, till remote lands told their story of human variation and culture stages, and till the teachings of embryology and comparative anatomy were better understood. The development and succession of the sciences may be likened to the development and succession of the fauna of which man forms a part. As man is last and highest in the geological succession, so the science of man is the last and highest branch of human knowledge. It is to be hoped that the overflow from the sciences contributing to anthropology may be properly conserved and so distributed as to find its way more generally to the channels of university instruction. Whether the channel chosen be an existing faculty or a new and separate one is not so important as the stream it has to carry; and there is reason that to believe that stream is gaining in volume constantly.

After the foregoing article was in type, there came from his Excellency the Royal Prussian *Kultusminister*, in answer to my request of May 16th last for information, a manuscript statement handed in to him, September 27, 1899, by Professor Wilhelm Waldeyer entitled "Bericht über das anthropologische Unterrichtswesen in Deutschland." From this the writer is able to

supplement his own lists for Germany as follows:

Breslau, Dr. Partsch (Prof. ordin., Geography), 'Völkerkunde Europas'; Göttingen, Dr. von Bürger (Prof. tit., Zoology), 'Ursprung und Vorzeit des Menschen'; Heidelberg, Dr. H. Klaatsch (Prof. extraord., Anatomy), 'Anthropologie'; Kiel, Dr. Krümmel (Prof. ordin., Geography), 'Ausgewählte Kapitel der Anthropo-geographie'; Königsberg, Dr. Bezzenberger (Prof. ordin., Comp. Philology), 'Urgeschichte Ostpreussens'; Strassburg, Dr. G. Schwalbe (Prof. ordin., Anatomy), 'Anthropologie'; Tübingen, Dr. von Sigwart (Prof. ordin., Philosophy), 'Philosophical Anthropology.'

This increases the number of German universities giving instruction in anthropology by seven, but does not augment the number of professorships.

Dr. W. H. L. Duckworth is the newly appointed University lecturer in physical anthropology at Cambridge.

GEORGE GRANT MACCURDY.

YALE UNIVERSITY,  
NEW HAVEN.

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#### ECONOMICS, POLITICS AND FINANCE OF VOTING MACHINES.

THE writer, as a member, from its organization, of the New York State Commission to inspect and authorize voting machines for the use of the cities and towns of the state, and as Chairman for some years, to date, of the Finance Committee of the City Council of Ithaca, has had occasion to study the very novel and most ingenious construction of voting machines and to seek to ascertain their value in economics and politics, and as a matter of finance; and it is possible that economists and students of politics and of finance may find the deductions from this exceptionally fortunate experience both interesting and important—interesting as a curious illustration of the