


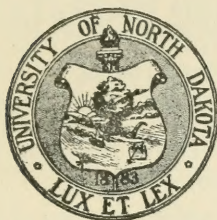
UNIV. OF
TORONTO
LIBRARY



Digitized by the Internet Archive
in 2008 with funding from
Microsoft Corporation

2.

The Quarterly Journal of the University of North Dakota



VOLUME FOUR
1913-1914

153383
27/11/19.

PUBLISHED BY THE UNIVERSITY

The Quarterly Journal

OF

THE UNIVERSITY OF NORTH DAKOTA

CONTENTS OF VOLUME FOUR

NO. 1, OCTOBER, 1913

- I. THE GEOLOGICAL MAP OF NORTH DAKOTA
ARTHUR GRAY LEONARD 3
- II. A STUDY OF THE CORROSIVE ACTION OF
RED LAKE RIVER WATER BEFORE AND
AFTER SAND FILTRATION WITH ALUM
COAGULATION
GUSTAV F. RUEDIGER
CARL F. RAVER14
- III. WIRELESS AND WEATHER
ALBERT HOYT TAYLOR19
- IV. RADIOELECTRIC TRANSMISSION AS RE-
LATED TO SPARK PITCH
ALBERT HOYT TAYLOR24
- V. THE MULTIPLE SPARK GAP AND ITS IN-
FLUENCE ON DECREMENT
ALBERT HOYT TAYLOR
OSCAR ORRIN WILCOX31
- VI. RADIO-ACTIVITY IN NORTH DAKOTA
GEORGE A. ABBOTT35
- VII. THE RELATION OF IDEALS IN SCIENTIFIC
AND TECHNICAL EDUCATION TO IN-
DUSTRIAL DEVELOPMENT
EARLE J. BABCOCK43
- VIII. ENGINEERING REPORTS
EDWARD BEATTIE STEPHENSON47
- IX. THE SYNCHRONOUS MOTOR AS A ROTARY
CONDENSER
SAM R. RHODES55

111

CONTENTS—Continued

X.	BOOK REVIEWS	70
XI.	UNIVERSITY NOTES	84

No. 2, JANUARY, 1914

I.	CHRISTABEL, AN INTERPRETATION VERNON PURINTON SQUIRES	101
II.	THE GREAT REFUSAL GOTTFRIED EMANUEL HULT	107
III.	THE CORTEGGIANO OF COUNT BALDASSARE CASTIGLIONE; A SIXTEENTH CENTURY GENTLEMAN HENRY R. BRUSH	120
IV.	THE THEATER AS A POWER WILLIAM FAVERSHAM	143
V.	REMINISCENCES OF OXFORD—BY ONE OF HER SONS GEORGE ST. JOHN PERROTT	154
VI.	THE NATURE OF MORAL BEHAVIOR, AND ITS EXPRESSION IN INTENTION AND OVERT ACT JOHN W. TODD	164
VII.	BOOK REVIEWS	178
VIII.	UNIVERSITY NOTES	190

No. 3, APRIL, 1914

I.	SYNDICALISM AND SOCIALISM AND THEIR MEANING FRANK L. McVEY	201
II.	A STATISTICAL STUDY OF THE INFLUENCE OF ENVIRONMENT GEORGE R. DAVIES	212
III.	CANADA'S COMBINES INVESTIGATION ACT JAMES ERNEST BOYLE	237
IV.	THE ORGANIC CONCEPT AND SOCIETY JOHN MORRIS GILLETTE	245

CONTENTS—Continued

V. BOOK REVIEWS259
 VI. UNIVERSITY NOTES273

No. 4, JULY, 1914

I. DEMOCRACY AND LITERATURE
 A. W. CRAWFORD289

II. THE STORY OF THE MEDIEVAL CATHEDRALS
 OF THE RHINE VALLEY. (I) The Romanesque
 Style and Its Antecedents
 GEORGE PULLEN JACKSON302

III. THE HEBREW ACCOUNT OF CREATION IN
 THE LIGHT OF SOME OTHERS
 WALLACE NELSON STEARNS 317

IV. A SPIRITUAL UNIVERSE
 SAMUEL F. HALFYARD321

V. FOUNDERS' DAY
 GOTTFRIED EMANUEL HULT329

VI. MAKING "A PAGEANT OF THE NORTH-WEST"
 FREDERICK HENRY KOCH334

VII. THE MINISTRY OF MUSIC
 WILLIAM WELLINGTON NORTON338

VIII. BOOK REVIEWS351

IX. UNIVERSITY NOTES358

The Quarterly Journal

PUBLISHED BY

THE UNIVERSITY OF NORTH DAKOTA

CONTENTS

- I. THE GEOLOGICAL MAP OF NORTH DAKOTA
ARTHUR GRAY LEONARD ----- 3
- II. A STUDY OF THE CORROSIVE ACTION OF RED LAKE RIVER WATER BEFORE AND AFTER SAND FILTRATION WITH ALUM COAGULATION
GUSTAV F. RUEDIGER
CARL F. RAVER -----14
- III. WIRELESS AND WEATHER
ALBERT HOYT TAYLOR -----19
- IV. RADIOELECTRIC TRANSMISSION AS RELATED TO SPARK PITCH
ALBERT HOYT TAYLOR -----24
- V. THE MULTIPLE SPARK GAP AND ITS INFLUENCE ON DECREMENT
ALBERT HOYT TAYLOR
OSCAR ORRIN WILCOX -----31
- VI. RADIO-ACTIVITY IN NORTH DAKOTA
GEORGE A. ABBOTT -----35
- VII. THE RELATION OF IDEALS IN SCIENTIFIC AND TECHNICAL EDUCATION TO INDUSTRIAL DEVELOPMENT
EARLE J. BABCOCK -----43
- VIII. ENGINEERING REPORTS
EDWARD BEATTIE STEPHENSON -----47

IX.	THE SYNCHRONOUS MOTOR AS A ROTARY CONDENSER	
	SAM R. RHODES	55
X.	BOOK REVIEWS:	
1.	Essentials of Physics for College Students: Daniel W. Hering. A. H. Taylor.....	70
2.	The Mathematical Theory of Heat Conduction: L. R. Ingersoll and O. J. Zobel. B. J. Spence....	71
3.	Thick-Lens Optics: Arthur Latham Baker. E. B. Stephenson	73
4.	Principles of Scientific Management: Frederick Winslow Taylor. J W. Todd	74
5.	Safety: William H. Tolman and Leonard B. Ken- dall. A. J. Becker.....	76
6.	The Making of a Town: Frank L. McVey. E. T. Lies	78
7.	The Social Evil: Edwin R. A. Seligman, Editor. J. M. Gillette	79
8.	The Cambridge Manuals of Science and Literature: P. Giles and A. C. Seward, Editors. A. J. Ladd	81
XI.	UNIVERSITY NOTES	84

EDITORIAL COMMITTEE

A. J. LADD,
MANAGING EDITOR

ASSISTANTS

BY APPOINTMENT TO THE
GRAND FORTS TIMES-HERALD



All communications should be addressed,
THE QUARTERLY JOURNAL,
University, North Dakota

The Quarterly Journal

VOLUME 4

OCTOBER, 1913

NUMBER 1

The Geological Map of North Dakota

ARTHUR GRAY LEONARD,

*Professor of Geology, University of North Dakota, and Director
of the State Geological Survey*

ON the accompanying geological map of North Dakota is shown the distribution of the different rock formations of the State. The glacial drift which forms a mantle of varying thickness overlying the older rocks thruout most of the region is not represented. The map thus gives the areal distribution of the formations as nearly as this can be determined beneath the covering of glacial deposits.

It is only recently that sufficient data have been at hand for the preparation of even an approximately correct geological map of the state and there is still much to be learned regarding the distribution and extent of several of the formations. The map which is herewith presented can hardly be regarded, therefore, as more than provisional and intended to record the present state of our knowledge regarding the geology of the region.

As indicated on the map, the geological formations occurring in North Dakota all belong to the Cretaceous, Tertiary and Pleistocene periods. Some were deposited in the great sea which at one time covered the Great Plains region; others were formed in lakes or were deposited by rivers, while still others owe their origin to extensive continental glaciers.

CRETACEOUS SYSTEM

DAKOTA SANDSTONE

The Dakota sandstone, which lies at the base of the Cretaceous, does not appear at the surface anywhere in the state, but has been reached in many deep wells. It is of economic importance in North and South Dakota, as the source of artesian water. Over most of the state it lies at considerable depth below the surface. In the

eastern counties it has been struck at depths varying from 1000 and less to 1450 feet. The Devils Lake well reached the sandstone at 1431 feet and at Jamestown it was encountered at about 1450 feet, while further south and east it lies nearer the surface.

The rock is a gray and brown sandstone containing layers of clay or shale. At the base of the formation there is sometimes a conglomerate. The sandstone varies from rock that is quite firm to loose sand which is barely consolidated and is frequently so soft as to be readily excavated with a pick. Fossil leaves are very abundant in places and the flora of the Dakota sandstone includes no less than 450 species of plants.

The thickness of the sandstone varies widely at different points but it is seldom more than 500 feet and is commonly less.

BENTON SHALE

The Benton shale is exposed at the surface only in the north-eastern corner of North Dakota, where it outcrops for a few miles along the Pembina river. It has also been penetrated in a number of deep wells. The Benton shale is a dark gray, almost black shale, containing considerable carbonaceous material. It is soft, fissile, and in places weathers to a plastic clay. It sometimes breaks readily into thin flakes and occasionally has a strong odor of petroleum. The shale contains considerable iron pyrites. About 150 feet of Benton shale are exposed on the Pembina river, opposite the mouth of the Little Pembina river. It has here been used for brick making.

NIOBRARA FORMATION

The Niobrara shale outcrops in the Pembina mountains which form a wooded escarpment on the west side of the Red River valley. Its outcrop forms a narrow belt extending nearly thirty miles south of the Canadian boundary. A calcareous clay exposed at Valley City is also probably to be referred to the Niobrara formation.

The rock is a bluish gray, moderately hard, calcareous shale. It contains numerous small white specks of lime which give it a finely mottled appearance plainly seen on a fresh fracture. This lime content is due almost wholly to minute Foraminifera. Under the microscope the two species which are particularly common are seen to be *Globigerina cretacea* and *Taxularia globulosa*. The shells of these Foraminifera constitute the greater part of the chalk of the European Cretaceous. The fact that these minute animals are mingled with a considerable amount of clay, some-

A GEOLOGICAL MAP OF NORTH DAKOTA

BY A. G. LEONARD, STATE GEOLOGIST.



LEGEND

- Quaternary
 - Pleistocene
 - Lake Agassiz Silt
- Tertiary
 - Oligocene
 - White River Formation
 - Eocene
 - Fort Union Formation
- Tertiary or Cretaceous
 - Lance Formation
 - Fox Hills Sandstone
 - Pierre Shale
 - Niobrara Calcareous Shale
 - Benton Shale

Scale
2 1/2 miles = 1 inch
1913

times fully one-half of the rock being clay, indicates that these forms will live in water containing a large amount of sediment. The amount of lime carbonate present in the rock varies from 20 to 75 per cent, and some of the layers have nearly or quite the composition of a natural Portland cement rock. Many of the beds are suitable for making natural hydraulic cement and are used for this purpose.

Wherever the Niobrara formation is exposed in the Pembina mountains it maintains a fairly uniform character thruout its thickness of 150 feet or more. By far the greater portion of the aggregate thickness is formed of a rather dark bluish-gray mottled rock which varies from 55 to 65 per cent of lime carbonate in passing from one layer to another. Generally the more mottled the rock appears the higher it is in lime. Between these thicker layers of rock high in lime carbonate are others much thinner, varying from a few inches to a foot in thickness, which are much lower in lime.

The Niobrara strata of the Pembina mountain region have yielded a number of invertebrate and vertebrate fossils. Among the formr are *Inoceramus labiatus* and specimens of *Ostrea* and *Anicula*. The large diving bird, *Hesperornis*, several species of fishes, *Plesiosaurus* and the vertebrae of a crocodile have also been found.

PIERRE SHALE

As shown on the map, the Pierre shale covers a large area in eastern North Dakota, extending from 70 to 160 miles west of the Red River valley. It also outcrops in two small areas, one along the Missouri river and another on Little Beaver creek, in the southwestern corner of the state. Thruout the large eastern area the Pierre is for the most part covered by a heavy mantle of drift and only where the streams have removed this glacial deposit is the shale exposed to view. The best outcrops are found in the ravines and valleys of the Pembina mountain region, where the beds forming the lower 300 to 400 feet of the formation are well shown. At the base are seen black to dark brown carbonaceous shales, which contain many thin layers of yellow or white clay. These black and yellow bands present a striking appearance and the great extent of territory covered by them is remarkable. They occur at Valley City, outcrop at intervals for a distance of 30 miles along the Pembina mountain escarpment, and extend at least 250 miles northwestward in Canada, where they have been noted in the Riding and Duck mountains. The black bands vary in thickness from eight to four-

teen inches and the yellow from one to four inches and over. The typical Pierre overlying these basal beds is a dark to light bluish gray shale which in weathering breaks up into small flakes.

Where the upper portion of the formation is exposed, as in the small area in southwestern North Dakota, it is found to contain many calcareous concretions, some of them being five or six feet in diameter. These are rich in marine shells, about 20 species having been found in the above locality, among them the nautilus and baculite.

FOX HILLS SANDSTONE

The uppermost of the marine formations in this region is the Fox Hills sandstone, which outcrops about the Pierre areas in south-central and southwestern North Dakota. It is particularly well shown on the Cannon Ball river for a distance of 10 or 12 miles above the mouth, where it forms vertical cliffs rising from 80 to 90 feet above the river, or 1680 feet above sea level. As exposed here the rock is a yellow, brown or gray, rather soft sandstone. Cross-bedding is very common, and the rock contains great numbers of large and small ferruginous sandstone concretions, many of them also exhibiting cross-bedding. The concretions are apparently due to the segregation of the iron in certain portions of the rock, cementing the sand into firm, hard masses, considerably harder than the sandstone in which they are imbedded. These nodules or concretions vary in size from an inch and less to six and eight feet. Small, irregular, twisted, or stem-like forms are abundant at certain points. Some portions of the rock are so completely filled with these brown concretions that they constitute the main bulk of the formation, and the gray, loosely cemented sandstone forms a kind of matrix in which the hard nodules are imbedded. In the process of weathering these more resistant nodules project beyond the softer rock, and at the base of slopes and scattered over the surface they are exceedingly abundant. Many of the concretions are of good size and spherical in shape, and it is these which have given its name to the Cannon Ball river, since they occur abundantly along this stream.

On Little Beaver creek, in Bowman County, the Fox Hills is composed of 60 feet of massive gray sandstone, which weathers to a yellow color, and below this is 25 feet of sandy clay formed of light and dark laminae.

This sandstone contains marine shells which establish its age as Fox Hills beyond doubt, according to Dr. Stanton.

PLATE I



Fig. 1—Bluff of the Little Missouri River at the mouth of Bacon Creek, showing the dark colored Lance beds. Dinosaur bones occur in these beds.



Fig. 2—The Lance beds exposed in bluff of Little Missouri River near mouth of Bacon Creek, Billings County, shows many concretions.

CRETACEOUS OR TERTIARY ROCKS

LANCE FORMATION

This name has recently been adopted by the United States Geological Survey for the formation which has been variously called the "Ceratops beds," "Lower Fort Union," "Laramie," "Hell Creek beds," and "Somber beds." The name is derived from the term "Lance Creek beds," which was applied to the deposits by J. D. Hatcher in 1903, being taken "from the principal stream in the region where they are best represented in Converse County, Wyoming."

The Lance formation occurs in two areas in North Dakota, one in the south-central part of the state and another in the southwestern corner. In the former area numerous good outcrops are found along the Missouri, Cannon Ball and Heart rivers and many of the smaller streams. They extend up the Missouri to within eight or ten miles of Washburn, where they disappear below river level and are replaced by the Fort Union. In this region the Lance formation is seen to consist of three members: An upper massive, gray, brown and yellow sandstone about 100 feet thick; a middle member composed of dark shales with a few sandstone layers and having a thickness of 200 to 250 feet, and a lower member made up of shales and sandstones in alternating layers. This latter member has a thickness of 350 feet or over, and the maximum thickness of the entire Lance formation is probably not far from 700 feet in this area.

Where the contact of this formation with the underlying Fox Hills is shown on the Cannon Ball river they are seen to be conformable, and there appears to have been a gradual change from the marine conditions of Fox Hills time to the fresh water conditions under which the Lance beds accumulated, with continuous deposition thruout.

Along the Little Missouri river in the extreme southwestern corner of North Dakota, the Lance beds are excellently shown in the bluffs and badlands bordering the valley. In going down the valley from Marmarth to Yule many good outcrops appear and one passes from near the base to the top of the formation. It is seen to be composed mostly of alternating beds of shale and soft sandstone, which have a notably dark and somber aspect in marked contrast to the yellow and light gray colors of the overlying Fort Union. The prevailing color is dark gray, but beds of brown car-

bonaceous clay shale are very common and conspicuous. The strata also contain much dark brown, ferruginous material, occurring both in thin seams and concretions, and fragments of them cover the slopes in many places. Great numbers of sandstone concretions are present, some eight or ten feet in diameter. Only thin beds of coal occur in the lower 300 feet of the Lance formation in this area, but in the upper portion thick beds of lignite are found in many places, as in the vicinity of Yule, where five or six coal beds are present.

The basal beds of the Lance formation together with the Fox Hills sandstone are well exposed near Marmarth. The massive sandstone forming the top of the latter is seen to have undergone erosion before the deposition of the very carbonaceous and argillaceous, brown and black sandstone which overlies it. There appears to be an unconformity between the two formations, but the uneven surface of the Fox Hills may be due to the action of currents in the shallow sea of this period, in which case no long time interval between the deposition of the sandstone and the overlying Lance beds would be indicated by the eroded surface of the Fox Hills.

The fossils of the Lance formation consist of plants that Dr. Knowlton considers belong without question to a Fort Union flora, and the bones of dinosaurs, among which *Triceratops* and *Trachodon* have been found in the Little Missouri badlands. A bed of oysters was also found near Yule.

The Lance formation lies near the boundary line between the Cretaceous and Tertiary, and for many years there has been much discussion concerning the age of its beds. These have recently been carefully studied by the geologists of the United States Geological Survey and their investigations seem to show that in many places in Wyoming, Montana, and South Dakota where the contact has been observed the Lance formation rests unconformably on the Fox Hills sandstone.¹ It has already been shown that on Little Beaver creek in Bowman County, North Dakota, the Fox Hills sandstone had undergone erosion before the deposition of the Lance beds, and altho it has been questioned whether this erosion represents a long time interval, the relationship elsewhere suggests the probability of a true unconformity here. The Lance formation

1. F. H. Knowlton, "Further data on the Stratigraphic Position of the Lance Formation (Ceratops Beds)" *Journal of Geology*, Vol. XIX, 1911, pp. 358-376.

PLATE II



Fig. 1—The eroded surface of the Fox Hills sandstone overlain by dark, carbonaceous beds of the Lance formation. Beaver Creek, Bowman County.

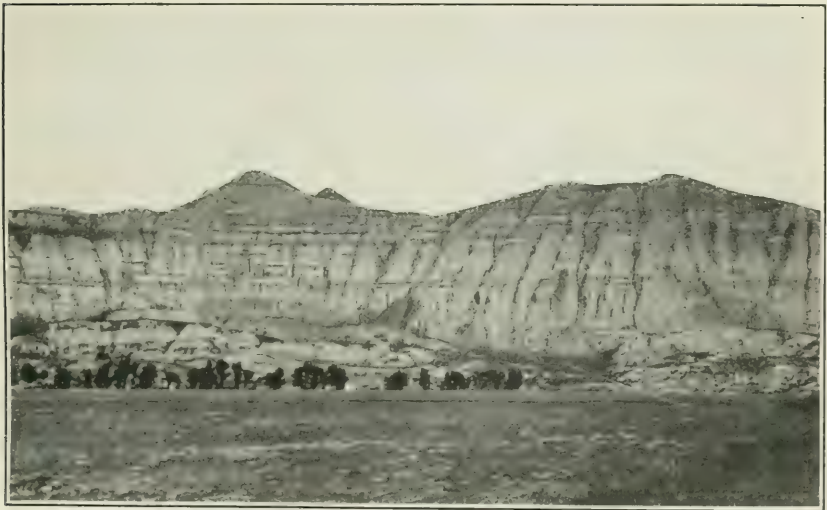


Fig. 2—The Tepee Butte bluff of the Little Missouri River 584 feet high, showing the dark colored upper member and light colored typical Fort Union below.

everywhere passes conformably into the Fort Union above, so that on stratigraphic grounds it is more closely related to the Fort Union than to the Fox Hills.

Its plants also indicate a close relationship with the Fort Union formation. According to Dr. Knowlton 193 forms of plants have been found in the Lance beds, and of these, 84 species have been positively identified.² Since the greater number of these plants (68 species) are common to the Fort Union, he considers the Lance beds the lower number of the Fort Union formation and therefore of Tertiary age.

On the other hand, the Lance beds are regarded by Dr. T. W. Stanton as of Cretaceous age by reason of "the pronounced Mesozoic character of the vertebrate fauna with absence of all Tertiary types, and by the close relations of its invertebrate fauna with the Cretaceous."³ But the more recent investigations referred to above seem to indicate that the unconformity at the base of the Lance formation is not as unimportant as it was thought to be by Dr. Stanton and that it represents a very long period of erosion during which hundreds and, in places, even thousands of feet of strata were removed, and on the basis, therefore, of the stratigraphic evidence the Lance formation is closely allied to the Fort Union rather than the Fox Hills.

But to whichever system it is ultimately referred, and at the present time there is considerable evidence that it is Tertiary, it constitutes a transition formation from the Cretaceous to the Tertiary.

The Lance formation of North Dakota is the approximate equivalent not only of the "Ceratops beds" of Wyoming, but of the "Hell Creek beds" of Montana. It also appears to occupy the stratigraphic position of beds in other areas which have been assigned to the Laramie formation, at least, in that it lies above the Fox Hills sandstone and beneath the Fort Union formation.

TERTIARY SYSTEM

FORT UNION FORMATION

The Fort Union is one of the best known formations of the Northwest. It covers a vast area east of the Rocky Mountains, stretching from Wyoming to the Arctic Ocean in the valley of the Mackenzie river, and including part of several Canadian provinces, much

2. Proc. Wash. Acad. Sci. Vol. XI, No. 3, 1909, p. 219."

3. Proc. Wash. Acad. Sci. Vol. XI, No. 3, 1909, p. 293.

of western North Dakota, eastern Montana, northwestern South Dakota and central and eastern Wyoming.

The name Fort Union was first used by Dr. F. V. Hayden in 1861 to designate the group of strata containing lignite beds, in the country around Fort Union, at the mouth of the Yellowstone river. It is a fresh-water formation and is composed of clay shales alternating with soft sandstone and containing many beds of lignite. The Fort Union is remarkably uniform in color, composition and appearance thruout the region under discussion. The prevailing color is either a light ash gray or yellow, but in places the beds are nearly white. The beds of the formation are well shown in the badlands on either side of the Northern Pacific railroad between Fryburg and Medora.

Over a large area between the Missouri and Little Missouri rivers the Fort Union is formed in part of white sandy clays and very pure plastic clays, which differ from any of the beds found elsewhere. These occur in Stark and Dunn counties and adjoining portions of the surrounding counties, where they are restricted to the tops of the higher ridges and divides, or to an elevation of from 2450 to 2600 feet above the sea level. Near the eastern border they lie about 600 feet above the base of the Fort Union, and their maximum thickness is 150 feet. These white, sandy clays are well shown near Dickinson and Gladstone, and several miles north of Hebron.

The Fort Union formation everywhere contains numerous beds of lignite. These vary in thickness from an inch and less to thirty-five feet, beds six, eight and ten feet thick being common. Coal is much more liable to be present in the Fort Union than in the underlying Lance formation, for the latter is practically barren of coal in many localities and over large areas. One rarely finds an outcrop of the former, where several hundred feet of strata are exposed, that does not contain at least one or more coal beds. The aggregate thickness of the twenty-one coal beds of southwestern North Dakota which are four feet and over is 157 feet.

One of the most conspicuous features of the Fort Union is the vast quantity of burned clay or clinker produced by the burning coal beds. The heat has been sufficient to burn the overlying clays to a red salmon pink color, and in many places, to completely fuse to slag-like masses. The beds of clinker vary in thickness from five or six to forty feet or over, and some of them have been traced many miles in the bluffs bordering the valleys, and in the ridges and di-

PLATE III



Fig. 1—A burning coal bed. The surface over the coal has settled many feet and the ground is broken by wide cracks from which gases escape. Typical Fort Union beds in background.



Fig. 2—A mass of burned clay or clinkers formed by the burning of a thick coal bed. Mouth of Deep Creek, Billings County.

vides, while large numbers of the lower buttes are capped with these protecting layers.

There are great numbers of excellent outcrops of the Fort Union beds in the wide belt of badlands bordering the Little Missouri valley from a few miles below Yule to the mouth of the river, a distance of nearly 200 miles.

The maximum thickness of this formation is not far from 1000 feet in western North Dakota, but over most of the region it has undergone great erosion and from large areas hundreds of feet have been removed. It is only by the erosion of this entire formation that the Lance beds have been exposed, since the Fort Union formerly covered the entire region.

The Fort Union beds, which are early Eocene in age, contain a flora of nearly 400 species, and a fauna comprising both vertebrates and invertebrates.

WHITE RIVER BEDS

The White River beds of the Oligocene occupy three small areas in southwestern North Dakota. They are found in White Butte, in southeastern Billings county, where they cover an area eight to ten square miles in extent, forming the highest portion of the divide at the headwaters of the North Fork of the Cannon Ball river and Deep and Sand creeks. In White Butte the White River beds are seen resting directly on the upper sandstone of the Fort Union.

The formation is composed of white clays at the bottom, on which rest a coarse sandstone filled in places with large pebbles; this is overlain by about 100 feet of calcareous clays which in turn are overlain by more than 100 feet of fine-grained greenish sandstone. These deposits represent all three divisions of the White River group, the lower or Titanotherium beds, the middle or Oreodon beds, and the upper of Protoceras beds. Another locality was discovered in 1905 by Mr. Earl Douglass in southwestern Stark county, where the White River beds form what is termed the "Little Bad Lands." From both these localities many mammalian bones were collected, including those of a rhinoceros and *Mesohippus*.

The third area where the Oligocene occurs is on top of Sentinel Butte. The beds here cover only a few acres and are formed of calcareous clay and compact limestone. The latter contains the remains of two species of fresh water fishes.

QUATERNARY SYSTEM

PLEISTOCENE DEPOSITS

The Pleistocene deposits are very different in origin from those thus far considered. Instead of being marine or ordinary fresh water sediments, they have been formed thru the agency of the vast continental glaciers which once covered the region. They present a marked contrast to the Cretaceous and Tertiary formations not only in origin but in appearance and mode of occurrence. The deposits were formed long after the beds of the Fort Union or Oligocene were laid down, and many of the deposits overlie the earlier formations without regard to altitude, forming a mantle of varying thickness.

LAKE AGASSIZ SILT

This is the youngest formation represented on the map, and is confined to the Red River valley. This valley constitutes a well marked depression extending south from the basin of Lake Winnipeg as far as the South Dakota line and bordered on the east and west by land rising 400 to 600 feet above the bottom of the valley. Toward the close of the Glacial Period the great body of water which has been named Lake Agassiz occupied this valley and extended far north into Manitoba, having an area of 110,000 square miles, or more than the combined area of the Great Lakes. The lake came into existence when the continental glacier, during its retreat northward, gradually uncovered the broad depression of the Red River Valley and formed an immense dam of ice at the north which prevented the drainage of the melting ice from finding an outlet in that direction. As the ice sheet retreated the lake was gradually extended and continued to increase in size until its maximum area was attained. The rivers emptying into Lake Agassiz carried large quantities of sediment which were distributed by the waves and currents and settled to the bottom to form the sandy clay or loam of the lacustrine deposits. These silts vary in thickness from a few inches to thirty or forty feet. When the ice finally disappeared from the Lake Winnipeg basin Lake Agassiz was drained and its bottom now forms the level and fertile plain of the Red River valley.

GLACIAL DRIFT

As was stated in the introduction, the Cretaceous and Tertiary rocks of North Dakota are for the most part covered by a mantle of drift, not shown on the map, and are thus concealed from view

PLATE IV

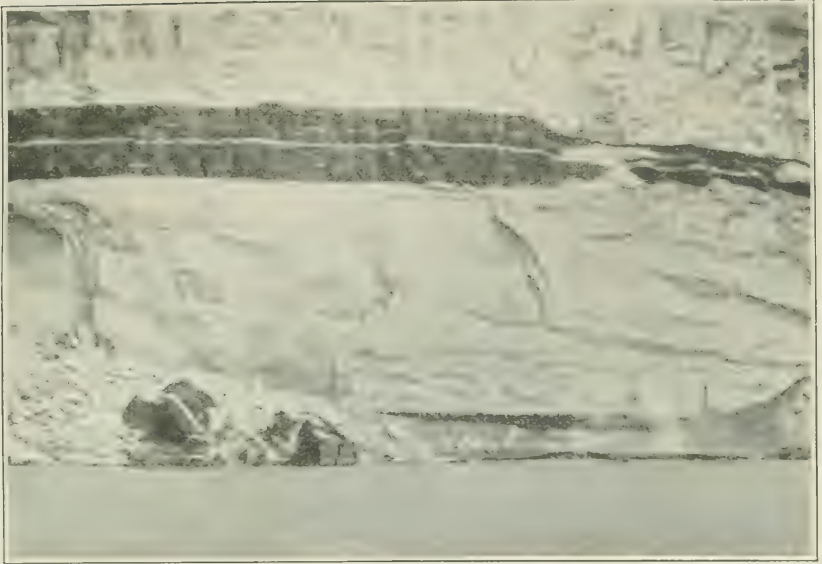


Fig. 1—Two coal beds in the Fort Union formation on Little Missouri river in northern Billings County. Upper bed is ten feet thick, the lower is near river level.



Fig. 2—Bluff on Beaver Creek, Billings County, showing Fort Union formation with ten coal beds. Thickest coal bed measures four feet and four inches.

PLATE V



Fig. 1—The flat summit of Sentinel Butte, showing cliffs of Fort Union sandstone and mound of Oligocene beds resting on the sandstone.



Fig. 2—The coarse sandstone of the lower member of the White River (Oligocene) beds, White Butte, Billings County, showing effects of rain erosion.

except where exposed at the surface by the erosion of the overlying glacial deposits. The drift of the Red River valley is in turn overlain by the Lake Agassiz silt.

The only part of the state in which the deposits of the continental glaciers are not found is in the southwestern corner, including most of Billings, Golden Valley, Bowman, Stark, Hettinger, and Adams counties, with a portion of Morton county.

Two drift sheets are known to occur in North Dakota, an older and a younger. The older drift, which is referred provisionally to the Kansan, is found for the most part west and south of the Missouri river and in the northwestern corner of the state. The younger, or Wisconsin drift, occupies most of the central and eastern portions of North Dakota.

West of the Missouri river the glacial deposits are represented mostly by gravel and boulders, but in the area covered by the Wisconsin drift the deposits consist of a heterogeneous mixture of clay, sand, gravel and boulders mingled together in varying proportions, tho generally the chief constituent is clay. The thickness of the glacial deposit varies widely, ranging all the way from a few inches to several hundred feet. It is the drift, left by the vast ice sheets which once covered the region, that has given rise to most of the fertile soils of North Dakota.

A Study of the Corrosive Action of Red Lake River Water Before and After Sand Filtration with Alum Coagulation

GUSTAV F. RUEDIGER and CARL F. RAVER,

(From the State Public Health Laboratory, University of North Dakota)

DURING the past winter there was much complaint about corrosion of hot water pipes in Grand Forks, which was supposed to be in some way connected with the treatment of the water at the new rapid sand filter. In order to determine whether or not the alum treatment and filtration materially increased the corrosive action of the hard waters found in this country, a set of carefully controlled experiments was carried out. For this purpose, we had a plumber prepare three 2-inch, black iron pipes, five feet in length, with an elbow at each end and a piece of pipe 1 foot in length connected at right angles to the long piece. This iron pipe could now be set up as shown in Figure 1 on the following page so that it would hold approximately one gallon of water.

In our experiments, the pipes were filled nearly to the top with water whose corrosive action we wished to determine, the ends were then sealed by pouring melted paraffin on the water and allowed to stand in a cool room for the desired number of days. The pipes were then opened and the water poured out and a quantitative determination of the iron content made for each sample. Twelve such sets of experiments were carried out, the results of which are shown in Table I.

Table I

Exp.	Date	Duration of Experiment	Iron Content of Water After Standing in Pipes (Parts per Million)	
			Raw Water	Filtered Water
1	Feb. 2	7 days	20	62
2	Feb. 9	7 days	18	32
3	Feb. 17	7 days	25	38
4	Feb. 24	3 days	26	52
5	Mar. 9	2 days	16	21
6	Mar. 21	2 days	17	17
7	Mar. 12	2 days	16	19
8	Apr. 4	2 days	18	20
9	Apr. 16	3 days	24	26
10	Apr. 24	2 days	15	19
11	Apr. 29	3 days	26	22
12	May 2	2 days	23	21
			—	—
			244	350

It will be noticed that on the whole the iron content in the filtered water which had stood in an iron pipe for several days was greater than that in the unfiltered water kept under the same conditions. In one of our experiments the results were alike for both samples and in two experiments the raw water seemed to have taken up slightly more iron than the filtered water. The reason for these two unexpected results is at present not entirely clear. It was thought, however, that the greater bacterial growth in the raw water pipe may have had an influence on the corrosive action of the water. At the time when these two experiments were carried out, the bacterial counts in the raw water were very high and the temperature in the room where the pipes were kept also was higher than during the previous experiments. The filtered water was almost sterile and, hence, there must have been a very much greater bacterial growth in the

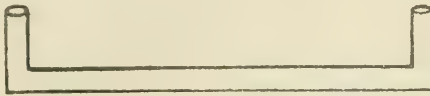


Fig. 1

raw water pipe than in the filtered water pipe, altho we made no experiments to determine this point. In our earlier experiments, the raw water had a much lower bacterial count and as the temperature in the room at that time did not reach 50 degrees Fahrenheit, it is reasonable to suppose that there was no rapid multiplication of bacteria in the raw water at that time.

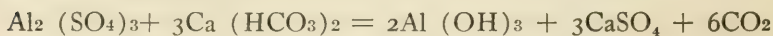
Many of those who complained about the corrosive action of the water were of the opinion that the addition of hypochlorite of lime to the water was the cause of the trouble. We, therefore, carried out several experiments to determine whether or not the addition of this chemical in such small amounts as it was used could be a disturbing element. Seven experiments were carried out and it was found that no increase in corrosion could be ascribed to this chemical. In one experiment there was apparently some increase in this action of the water, due to the addition of hypochlorite of lime, but in several other experiments the filtered water without hypochlorite showed a greater corrosive action than did the water containing 1/10 grain of hypochlorite to the gallon. The results of the experiments are shown in Table 2.

As the small amount of hypochlorite did not seem to increase the corrosive action of the water, we had to look for another cause of the trouble. It has been previously pointed out by other investi-

Table 2

Kind of water put into pipes	Iron Content of Water Samples After Stand- ing in Pipes 48 hours (Parts per Million)			
	Exp. 1	Exp. 2	Exp. 3	Exp. 4
Raw water	20	15.5	17	16
Filtered water without hypo- chlorite	62	21	17	19
Filtered water with 1/20 gr. hypochlorite per gal. ...	35	22	17	16
	Exp. 5	Exp. 6	Exp. 7	
Raw water	18	25	17	
Filtered water without hypo- chlorite	32	38	22	
Filtered water with 1/10 gr. hypochlorite per gal.	40	28	21	

gators that the corrosion of iron pipes is increased by the dissolved carbon dioxide held in the water. A good review of the literature on corrosion may be found in a paper by Clark and Gage in the Annual Report of the Massachusetts State Board of Health for 1910. They found in their studies that the corrosive action of the water is increased by filtration, and especially by rapid filtration with alum coagulation. Their investigation led them to the conclusion that this increase in corrosion is due largely to the removal of organic matter, which, if present, forms a protective coat over the iron. They also point out that the corrosion is increased by increasing the dissolved oxygen. It does not appear to us that the dissolved oxygen can be increased by filtration and alum coagulation and, hence, the oxygen content of water need not be considered in this connection. We know, however,, that CO₂ is liberated by the alum treatment, as shown in the following equation:



We, therefore, made quantitative determinations of free CO₂ in both the filtered and unfiltered water and found that the filtered water uniformly contains more of this compound than the unfiltered water. Moreover, it was found that the corrosion is very greatly increased if the water is lightly charged with CO₂ and diminished if the water is boiled to drive off the CO₂. The corrosive action always increases with an increase in dissolved carbon dioxide, other factors being equal. The results of these experiments are shown in Table 3.

In order to make absolutely sure that our results could not be attributed to a difference in the iron of the three pipes used, we rotated the pipes in different experiments. If, for instance, pipe No. 1 was filled with raw water in one experiment, it would be filled with the filtered water in the next experiment, etc. In addition to this, we made further control experiments by filling all of the pipes with

Table 3

Showing the Relation of Dissolved Carbon Dioxide to Corrosion of Iron Pipes

Water put into pipes	Free carbon dioxide in water	Iron Content of water after standing in pipes 48 hours
Exp. 1. Filtered water	13	22
Filtered water previously boiled and cooled	0	14
Exp. 2. Filtered water	13.5	21
Filtered water previously boiled and cooled	0	13.8
Exp. 3. Filtered water	12.5	19
Filtered water previously boiled and cooled	0	8.5
Raw water (river)	6	14
Exp. 4. Filtered water	12	28
Filtered water previously boiled and cooled	0	16
Raw water	5	24
Exp. 5. Filtered water	8	18
Filtered water previously boiled	0	10
Filtered water charged with CO ₂	90	120
Exp. 6. Filtered water	9	20
Filtered water previously boiled	0	13.5
Filtered water charged with CO ₂	380	180

the same sample of water and determining the iron content at the expiration of 48 hours. Three of these experiments were made with the results shown in Table 4:

Table 4

Iron content of Water After Standing in Pipes 48 Hours

	Pipe 1	Pipe 2	Pipe 3
Exp. 1	18	18	18
Exp. 2	18	20	16
Exp. 3	14.5	14	13.5

In one of these experiments we found a considerable difference in the iron content of the water from the different pipes, but in the other two the results agreed very well. We believe, therefore, that there was so appreciable difference in the ease with which these pipes were corroded by the same sample of water.

The water used in all of these experiments was taken from the Red Lake River which furnishes the supply for the City of Grand Forks. This water has a relatively high alkalinity and hardness but varies greatly at different times of the year as is shown by the following analyses in Table 5.

The water is polluted at several points with untreated sewage and is, therefore, subjected to filtration at the municipal water filter at Grand Forks. The filter is a rapid sand filter constructed by the Pittsburg Filter Company. Before filtration, the water is coagulated by the addition of from two to three grains of alum per gallon. Owing to the high natural alkalinity of the water, no alkali is added to decompose the alum. Immediately after filtration, the water is fur-

Table 5

Results of Analyses on Different Dates
(Parts per Million)

	February 16	March 20	April 5, 1912
Total alkalinity	440	320	130
Total residue	560	440	200
Total hardness	440	330	155
Temporary hardness	290	200	15
Permanent hardness	150	130	140
Calcium	92.2	53	24.4
Magnesium	50.3	48	22.5
Chlorine	17	15	2
Sulphates (as SO ₄)	115	76.8	57.6
Iron .....	.20	.10	.00
Nitrogen as:			
Free ammonia .....	.02	.002	.00
Albuminoid ammonia .....	.06	.07	.1
Nitrates .....	.15	.20	.40
Nitrites .....	.004	.00	.015

ther treated by the addition of from 1/15 to 1/10 grain hypochlorite of lime per gallon.

CONCLUSIONS

The following conclusions may be drawn from the results of this investigation:

1. The corrosive action of the hard waters in North Dakota is appreciably increased by sand filtration with alum coagulation. We believe, however, that most of the complaints which were made shortly after the filter was put into operation in Grand Forks could not be ascribed to the slight increase of the corrosive action of the filtered water. In all cases where the complaints were investigated, it was found that the hot water boiler, or hot water pipe, which started to leak was one that had been in service for upwards of 10 years and had probably been slowly corroding for a great many years. We found no instance where a comparatively new pipe had been sufficiently corroded to cause a leak.

2. In the water investigated, we believe that the increase in corrosive action after filtration and alum coagulation is due principally to the increase in dissolved carbon dioxide. It was shown that the dissolved carbon dioxide in the filtered water is greater than that in the unfiltered water, and that the corrosive action of the water increases when the water is lightly charged with carbon dioxide. We made no experiments to reduce the corrosive action of the filtered water, but it would seem that this could be accomplished by the addition of a small amount of lime water. Boiling the water to drive off the free CO₂ diminishes its corrosive action.

Wireless and Weather

ALBERT HOYT TAYLOR,

Professor of Physics, University of North Dakota

IT is a well known fact that the night range of a long distance wireless station is often several times greater than the day range. It is also a matter of very common experience that the day range and the night range are both subject to wide variations from day to day, or night to night. I do not refer to variations which are due to unfavorable conditions at the sender or at the receiver, such as excessive atmospheric electricity, heavy rains with consequent poor insulation, or interference with other stations, but rather to variations which may be traced to general absorption over long stretches of land or sea.

There must be a vast quantity of data bearing on this problem, as every operator must have noticed some connection between transmissivity and weather conditions, but the data is scattered and not very available. The writer is not aware that any serious attempt has been made to correlate the transmissivity over long distances with the weather conditions prevailing in the region traversed by the waves. There seems to be but one tenable theory as to the source of this absorption, and that is the sunlight theory mentioned by Zenneck, Pierce, and others. Ionization of upper layers of the earth's atmosphere by the ultra-violet rays of the sun is supposed to develop a slightly conducting medium which would account for the absorption.

If this be true, it might reasonably be expected that on a night following a day which has been sunny over a long stretch of country between any two stations, the transmissivity would be low, while if cloudy conditions prevail over the same area, the transmissivity would be high. On the other hand it may be argued that the ionization occurs in regions above the clouds, and that no connection between transmissivity and cloudiness should be expected.

There are few stations in this country more favorably situated for the investigation of the problem of absorption over land areas than the Radioelectric Station of the University of North Dakota, situated as it is near Grand Forks, just 1200 miles from each coast, and within easy reach of the lake district.

The aerial is of the inverted L type, 12 feet wide, 130 feet long, and 80 feet above the ground. An audion, used with a loose-coupler

and suitable tuning condensers has been found to be the most sensitive for long distance work. The audions used were operated at a fixed current value somewhat less than the value necessary for maximum efficiency. This heating current was in all cases not far from 0.32 ampere. The sensitiveness of an audion receiver was tested frequently by means of a standard test buzzer circuit, adjustable to any desired wave-length and damping. The applied voltage on the telephone circuit was varied so as to keep the sensitiveness at nearly the same value thru a series of tests.

It was not possible to obtain U. S. Weather Bureau maps on the day preceding the test, but thru the courtesy of Professor Simpson, Director of the University of North Dakota Weather Station, it was possible to get the maps on the day following the tests. This had one advantage, namely that the observer was unprejudiced by any preconceived notions as to the bearing of the weather on results.

On February 24 the writer listened between 7:00 P. M. and 11:00 P. M. and heard signals from the University of Michigan, at Ann Arbor, when 3.4 K. W. was employed, as a subsequent letter from Mr. H. S. Shepard, in charge of that station, indicated. Signals from some ten or twelve other stations along the Atlantic coast were also plainly heard. It must be noticed that at this distance from the coast, and with a moderately high aerial (80 ft.), coastal stations and ocean vessels are heard only under rather favorable conditions for transmission.

A glance at the weather forecast for Monday morning, Feb. 24, shows two large cloudy areas moving over the northern part of the United States. This map also shows a clear area some 500 miles wide between the University of Michigan and the University of North Dakota. The test with the University of Michigan station was even more remarkable for the fact that the signals of the University of North Dakota station were faintly heard at Ann Arbor when calling with 1 K. W. This test is the only one so far in which good transmission has been noticed to follow clear weather conditions, and even in this case it is seen that the whole Atlantic coast lay within a cloudy area, which extended to the westward beyond Michigan.

On Sunday, March 2, the writer was not at the station, but Mr. E. C. Reinecke, an amateur at Fargo, North Dakota, reported a very good night. Mr. Reinecke thought he heard signals from Colon, Panama, on that evening. A map for Sunday is not sent out by the Weather Bureau, but the map for Saturday, March 1, shows

a general cloudy condition all along the Atlantic coast, and from the Gulf to Winnipeg. The map for Monday shows very cloudy conditions prevailing thruout the Mississippi valley, the lake district, and the northwest. The indications are, therefore, that Sunday was pretty generally cloudy, and both Saturday and Monday maps show general cloudiness in the area between Fargo and Key West. Whether this condition extended as far as Colon or not, I am unable to say. It seems very likely that it did.

On the evening of March 4 we were able to hear stations from both coasts, and Key West signals were picked up at the University and also at Fargo. The weather map for that date shows cloudiness all along the line between Grand Forks and Jacksonville, Florida, and the following day's map shows that this condition moved on down beyond Key West. The map for March 4 shows a cloudy belt to the northwest, towards Seattle and Vancouver, while the whole Atlantic coast is likewise cloudy.

The night of March 13 was one of the best from the point of number of stations heard but the excessive static prevented any but a good operator from recognizing many calls. I have no hesitancy in saying, however, that more stations were heard on that night than on almost any other. The weather map for March 13 shows cloudiness everywhere except in the southwest.

The next test was made on March 17, and practically no stations were picked up between 8:00 P. M. and 11:00 P. M. The map for March 17 shows all the eastern part of the country in a clear area. The connection seems to be obvious.

On the next evening the writer thinks he identified three calls from the Pacific coast, near Vancouver and Seattle. It may have been a coincidence, but the map for the 18th shows a cloudy area between Grand Forks and Seattle, while the eastern coast is clear. This seems to explain why signals from no eastern stations were picked up that evening.

The map for the 18th seemed to indicate that the cloudy condition would proceed on eastward. Acting on this hypothesis, the writer spent the evening of the 19th at the station, expecting to catch the signals from many eastern stations. Much to his surprise not one was heard. Next morning when the map arrived it was seen that the cloudy condition had turned and swung down south thru the valley of the Mississippi, and that the east had remained clear. This seems to be rather definite evidence that cloudiness and transmissivity are directly connected.

It should have been noted in connection with the test of March 17, when no signals were heard, that Michigan called us by pre-arrangement at definite intervals, using from 4 to 8 K.W., but we were unable to hear anything.

On Monday, April 21, the University of Michigan station called us several times and was heard very distinctly altho the static disturbances were very bad. No eastern stations were heard, but signals from several in the lake district came in very strong. The weather map shows a cloudy area between Winnipeg and Chicago but a clear region along the eastern coast. On the following evening the writer listened between 8:00 and 9:30 with no result. Michigan did not operate for our benefit that evening, but I should have been able to hear signals from any lake stations that operated in that interval, if the cloudy area in that district as shown by the April 22 map has any bearing. The eastern coast remained clear.

On Wednesday evening we heard the University of Michigan, several stations in the lake district, and several on the northern Atlantic coast. The Wednesday map shows a cloudy area over all of this territory. On Thursday, April 24, Mr. Reinecke, at Fargo, reported hearing a number of lake stations with great distinctness, an observation which was checked at University of North Dakota station. The map for this day also shows a cloudy area in the lake region.

It would be possible greatly to multiply these instances of the connection between cloudiness and transmissivity, as I have made many random observations after sunny days of the early winter when very few stations were heard, and more often, none at all. So far, out of some thirty observations, I have found only two which do not clearly indicate that a general cloudiness over a wide area is sure to be followed by an evening of high transmissivity. It still remains to be shown whether cloudiness at transmission station or at receiving station is more fortuitous, altho I am inclined to think that the transmissivity is better when the sunny area, if there is such, affects only the receiving station and its neighborhood. The transmissivity is even then not as good, of course, at it is when the cloudy area includes both receiving and sending stations.

If the connection between cloudiness and transmissivity be conceded, it will be apparent that the general atmospheric absorption does not occur in the regions above the clouds to anything like the same extent that it does in the regions of lower level, which is contrary to previous speculations on this point.

It would also appear that far northern stations operating in summer when the period of sunshine is of long duration should have a shorter range than in winter. It would be of interest to know if the operators of Alaskan and northern Canadian stations have any data bearing on this point. With the collection and correlation of more data on radio-transmission and meteorological conditions doubtless some of the vagaries of wireless experimentation will be accounted for, and might even be put to practical use by weather bureaus.

Radioelectric Station,
University of North Dakota,
April 28, 1913

Radioelectric Transmission as Related to Spark Pitch

ALBERT HOYT TAYLOR,

Professor of Physics, University of North Dakota

THE total radiation from any given station can be mesured by the value of the factor $\frac{i^2}{\lambda^2P}$ as the writer has shown in a recent paper in the April number of the *Physical Review*, on "Optimum Wavelength in Radiotelegraphy." It has been found that the substitution of a rotary spark gap in place of the single spark gap, which was used in connection with experiments described in the aforesaid paper, will allow the radiation factor to be greatly increased. The gap which was used at first consisted of a rotating disc connected to a series of zinc points and two zinc electrodes. There were thus but two gaps in series. Later on, a rotary gap was designed in which the rotating arms made connection between a series of points arranged in a circle on a fixt insulating board in such a way that it was possible to arrange either two, four or six gaps in series. The determination of the resonance curves and the logarithmic decrement show that with this multiple gap, not only is the radiation factor increased but the aerial circuit shows practically one wave length. This shows, of course, that the multiple gap produces practically impact excitation and that the degree of impact excitation is better with the six gaps in series than with four gaps, and much better than with two gaps. The effect of the rotation alone with two gaps is to increase the radiation factor. This is due to the prevention of arcing by the sweeping away of the ions between the gaps in consequence of the rotation. But when multiple gaps are used we not only have a prevention of arcing but, due to the peculiar damping¹ of the primary which is brought about by the action of the series of small gaps, we have impact excitation. This allows the use of an exceedingly close coupling between primary and secondary with a consequent gain in efficiency. Now with the rotary gap the question naturally arises as to what speed of rotation will give the greatest possible efficiency. The following tables of observations and calculations on radiation factor show that the radiation factor $\frac{i^2}{\lambda^2P}$ for a set using a one K. W.

1. Zenneck, Drahtlose Telegraphie, pp. 22.

magnetic shunt transformer, is essentially independent of the speed of rotation. Probably some exception to the rule might be made at that particular speed which corresponds to the synchronous speed of the alternations used on the primary circuit of the transformer. Otherwise, over a very wide range of pitch of the note emitted by the rotary spark, which is determined by the speed of rotation, it has been found that the radiation factor calculates out to very nearly the same value. The significance of this is important. If the group frequency is reduced, that is to say, if the spark has a low pitch, the total radiated energy is practically the same as if the group frequency were higher, that is, the spark had high pitch. The nature of the radiated energy is, of course, rather different in these two cases; in the one case being a series of slow, strong impulses with rather long, dead spaces in between, whereas in the other case it is a series of rapid, but feeble impulses with comparatively little dead space in between.

When it comes to the audibility of these signals, it is perhaps rather difficult to draw any absolutely definite conclusions, but Mr. E. C. Reinecke, operating at Fargo, kindly made several tests for the writer and reports that with a moderate speed it was easier for him to hear our signals than with an extremely high speed, altho, at the same time, he remarked that the note was much *clearer* at the high speeds. This effect was, of course, noticed at the sending station as well, in the sound of the gap in operation. The writer has made three tests in connection with lectures given at different points in the state, viz.: Grafton, Langdon and Aneta. In the case of the Grafton lecture, the single non-rotating gap was made as large as possible. The spark was of low frequency and very snappy. It was heard very distinctly at a distance of forty miles with a power of about 600 watts, and the receiving aerial was of very moderate dimensions. At Langdon, eighty miles from the University station, it was possible to elevate the aerial only to a height of 25 feet, altho it was 300 feet long. It was necessary to use one K.W. of power, and it was noted that when the spark was slow and snappy it was much louder than when it had the high and singing note. During the test made at Aneta, sixty miles from the University, a power of 800 watts was used at the sending station with a high pitch singing spark. This came thru with great clearness and distinctness but was not particularly loud. Judging from these results, then, it would seem that from the standpoint of mere audibility a moderately low pitch with as large a spark gap as possible, insuring a snappy spark, gives the best results. On the other hand, for the actual reading of signals,

it is quite likely that the clear high tone and weaker spark is better, especially when there are static disturbances which closely simulate the effect of the low pitch and snappy spark.

It ought, perhaps, to be mentioned that these experiments were carried out with a 2000 ohm head telephone set of the expert type. These telephones are probably somewhat more sensitive to higher pitches than to the lower ones. It would seem that the fact that the measure of the radiated energy at the sending stations comes out practically the same for all pitches over a wide range would indicate that the question of the audibility of the signals is essentially a question of the proper adjustment of the receiving telephone for the pitch of the signal in question.

The writer is well aware of the current idea that the high efficiency of continuous oscillations for long distance work is due to the fact that such oscillations apparently suffer less absorption. This seems to have been borne out by recent investigations by L. W. Austin, of the U. S. Naval Wireless Laboratory. It has also been asserted that the high pitched group frequencies of the Telefunken sets and other quenched spark sets are very much less absorbed than the oscillations produced by ordinary spark sets. With these ideas in mind the author confidently expected that a long distance test would bring out the superiority of the high group frequencies. In connection with a test with the University of Michigan Radio Station, 750 miles distant, it was suggested by Mr. H. S. Sheppard, in charge of that station, that the writer take a series of shunted telephone readings on the University of Michigan signals, sent at 8.5 K.W. between 2:00 and 3:00 A. M., when the transmissivity was at its best for that night. Accordingly this was done, altho the atmospheric disturbances at that hour were rather bad. The pitch was varied between 385 and 840 per second, and the readings here were taken with a well seasoned audion as detector. The higher pitches were not sufficiently audible to take readings on accurately, but it was easy to determine that the pitch of 513 per sec., previously determined by Mr. Sheppard thru local experiments to be the best, came thru at least three times as strong as the highest pitch, 840, and 50% stronger than the lowest one of 385. On the same occasion Mr. Sheppard notes that our signals, sent at 3 K.W. and a pitch of 2000 per sec. were clear and easy to read above the atmospheric, but that they were much louder as the spark gap slowed down.

Now the author has noticed this effect in the running down of the pitch of the signals of distant stations using non-synchronous

rotary gaps as the gap slowed down. That is, the lower pitches were frequently noted to come in stronger than the higher ones.

All this is, however, not necessarily to be taken as a contradiction of previously mentioned experiments on the high transmissivity for great distances of continuous oscillations, because distant stations are never heard at this station, which has an aerial only 80 ft. in height, unless conditions for transmission are unusually good; that is, unless the absorption is unusually small. For instance, we are able to pick up the University of Michigan station in the winter time only after 6:00 P. M., and in the middle of summer only after 9:00 P. M., under average working conditions. The observations on the pitch of their spark were taken on a night following a clear day, which makes for conditions of large absorption; but their signals were loud enough for such observations to be taken only after midnight, when the absorption had been greatly reduced. In other words, if they had more power, or if we had a higher aerial, so that day time communication were possible, a different result might have been arrived at.

A further point is the fact that high group frequencies are still a long way from being equivalent to continuous oscillations, unless the logarithmic decrement be unusually small.

In spite of these modifying circumstances, however, the author is forced to concede that for practical purposes the group frequency which will carry the signals of a station of moderate size and power to the greatest distance is one of moderate pitch.

Table 1 shows the approximate constancy of the radiation factor with change of pitch of spark. The results were obtained with a type E transformer of 1 K.W. normal rating used with a high tension condenser of about .01 Mf. capacity. This condenser was constructed of double strength window glass and sheet copper and was immersed in oil to prevent brushing. The loss from dielectric hysteresis and leakage was rather large, but has not yet been accurately determined. Similar results to those shown in table 1 were obtained with a 4 K.W. Thordarson 40000 volt transformer using auto-transformer control, and indicated that for the following range of group frequencies the radiation factor, which is proportional to the station efficiency, was nearly constant, and of about the same value as for the type E transformer.

Wave length $\lambda = 460$ M	Power 600—800 watts
Pitch	Radiation Factor, $\frac{i^2}{\lambda^2 P}$
2800	81
2340	82
1710	81
1397	81
1170	81
810	76
810	79

Bearing in mind the conclusion that still lower pitches than 800/sec. are better for such a station as this one, it was thought best to make a new determination at lower pitches of the radiation factor. It was anticipated that with fewer partial discharges per cycle (60 cycle applied) there would be greater variations than those indicated in table 1.

Tables 2 and 3 show that this was indeed the case, and that the radiation factor was a maximum at a pitch between 760 and 650 per sec.

Table 2

Power	Pitch	Aerial current	Radiation factor, $\frac{i^2}{\lambda^2 P}$
1.32	380	4.70	66.5
1.50	515	5.20	72
1.66	615	5.85	82.5
1.44	740	5.40	81
1.92	980	6.25	81
2.16	1300	6.50	78

Table 3. Same as Table 2, but smaller gaps.

Power	Pitch	Aerial Current	Radiation Factor
1.40	615	4.95	70
1.80	735	5.80	75
1.24	740	4.95	78
1.44	935	4.95	68
1.18	770	4.45	76.5
1.44	800	5.2	75

Table 3 shows that a reduction of the spark gaps, altho giving a smoother note, reduces the radiation factor. The results are plotted in Figure 1, and would seem to indicate a maximum efficiency, or best radiation factor at a pitch of about 770/sec. The variations are evidently of sufficient amount to be taken into account in any estimate of the best group frequency for long distance work. Further observations on higher group frequencies confirmed the earlier results indicating an approximately constant radiation factor for these frequencies, altho with the Thordarson transformer some falling off of this factor is clearly evident even for frequencies high above the point 770. Around this point the falling off of the radiation factor is of course quite marked, as is evident from the plot.

In order to determine the best pitch for this station for a pair of 2000 ohm phones of 260 millihenrys inductance a number of observations were taken at a small station in Grand Forks, at three miles from the University. The receiving loose-coupler was set far out of tune, in order not to pick up too much energy, and the phones were shunted until the signals could no longer be distinguished. Table 4 gives the results. The shunt ratio is not compared with the power, but rather with the value of i^2 , which at a constant wave length is proportional to the radiated energy. This eliminates variation of the radiation factor.

Bearing in mind the well known difficulty of securing accurate data with the shunted telephone method, one is perhaps suprised to find no greater variation in the last column, which represents the rela-

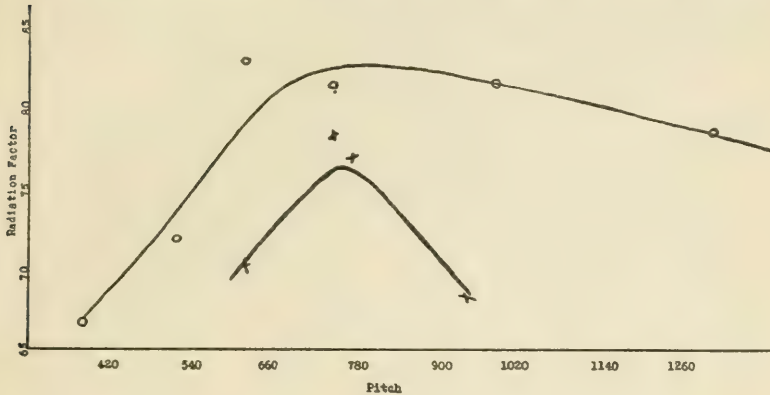


Fig. 1

tive efficiencies of the different pitches. With the exception of the one observation for pitch 705, however, these numbers are decidedly higher for the pitches below 1000 than they are for those above that number. When the higher radiation factor of the station for the medium pitches is taken into account, it is evident that the station is about 10% to 15% more effective if operated at a pitch of 750/sec. than if operated at pitches below 500/sec. or above 1000/sec.

It may well be said in criticism that much depends on the ear and on the telephone, but these results have been qualitatively confirmed by various operators using various types of phones. The author is inclined to think that the reason the optimum pitch of the University of Michigan station is still lower than that of this station is that the maximum for the radiation factor comes for that station at a lower pitch.

The final conclusion may be stated thus: The choice of pitch should be determined mainly by the maximum in the radiation factor, but for stations of moderate size things should be so adjusted as to bring this maximum at a pitch under 1000/sec.

Table 4

Pitch	Aerial Current	Shunt on tel.	Shunt ratio	r/i^2
572	4.7	2100	2.01	.092
605	4.6	2100	2.02	.095
705	4.85	2300	1.93	.082
773	4.75	1800	2.22	.098
840	5.10	1400	2.61	.099
1008	5.15	1750	2.37	.0895
1073	5.08	2100	2.13	.0825
1172	4.90	2200	2.10	.0875

Radioelectric Station,
University of North Dakota,
June, 1913

The Multiple Rotary Spark Gap and Its Influence on Decrement

ALBERT HOYT TAYLOR,

Professor of Physics, University of North Dakota

and

OSCAR WARREN WILCOX,

Senior Student, College of Arts

THE following experiments were performed at the University Radioelectric Station, using a 1 K.W. magnetic shunt transformer operating an .016 mf. condenser at a wave length of approximately 500 meters. They are reported here first because of

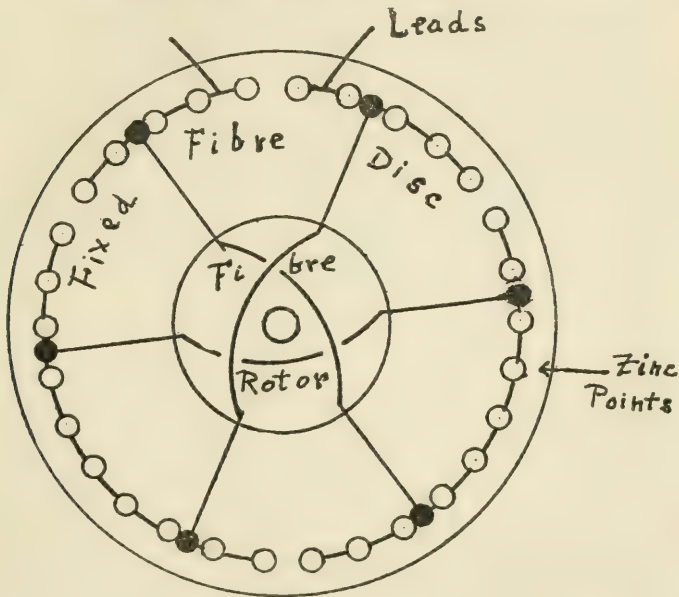


Fig. 1

the unusual type of rotary gap employed, and second because of the interesting way in which they show the superiority of a multiple rotary gap for the production of a wave of small decrement.

Figure 1 shows the construction of this gap. There are 30 fixed zinc $\frac{1}{4}$ " contacts arranged in a circle. Two consecutive groups of ten are connected together, as are also two consecutive groups of

five. To the last two groups are connected the leads, while the rotating part consists of three mutually insulated arms fixed to a fibre disk rotating on a shaft.

It will be seen that the spark must thus jump six gaps in series in getting from one lead into the other. The rotating part is of such small inertia that it accelerates rapidly, thus allowing a belt drive and the removal of the motor from the zone of immediate powerful inductive influence of the primary circuit, with consequent elimination of the possibility of a destructive kick-back in the motor.

This particular gap was constructed with the hope of obtaining, especially at the higher spark frequencies of 1000 to 2000 per second, a quenched spark. The tests showed that a very close coupling can be

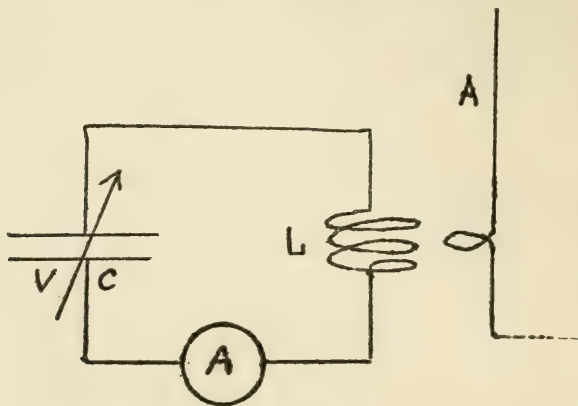


Fig. 2

used without the appearance of a second wave in the aerial circuit, provided that Wien's requirement of small gaps is approximately met. This indicates a pseudo-impact or quenched spark excitation of the secondary of the oscillation transformer.

Figure 2 shows the connections used in determining the wave lengths and logarithmic decrements of the oscillations in the aerial. A single loop acts inductively (very loose coupling) on the standardized inductance L in series with a variable rotary oil condenser $V C$ and¹ ammeter A . The value of the inductance was .00007 Henry, and the maximum value of the capacity about .006 Mf . The resistance of this circuit, mainly in the ammeter, was very approximately 1 ohm, thus insuring a small decrement at the frequencies employed.

1. A. H. Taylor, *Phys. Rev.*, May, 1912.

The writers are well aware that the decrements obtained may be open to errors of calibration and observation amounting to several per cent, but believe that the relative values are fairly accurate.

The left hand curves 1 and 2 of Fig. 3 are not pertinent to the subject of this paper, but as the data was taken and plotted at the same time they are reproduced here as showing the improvement which

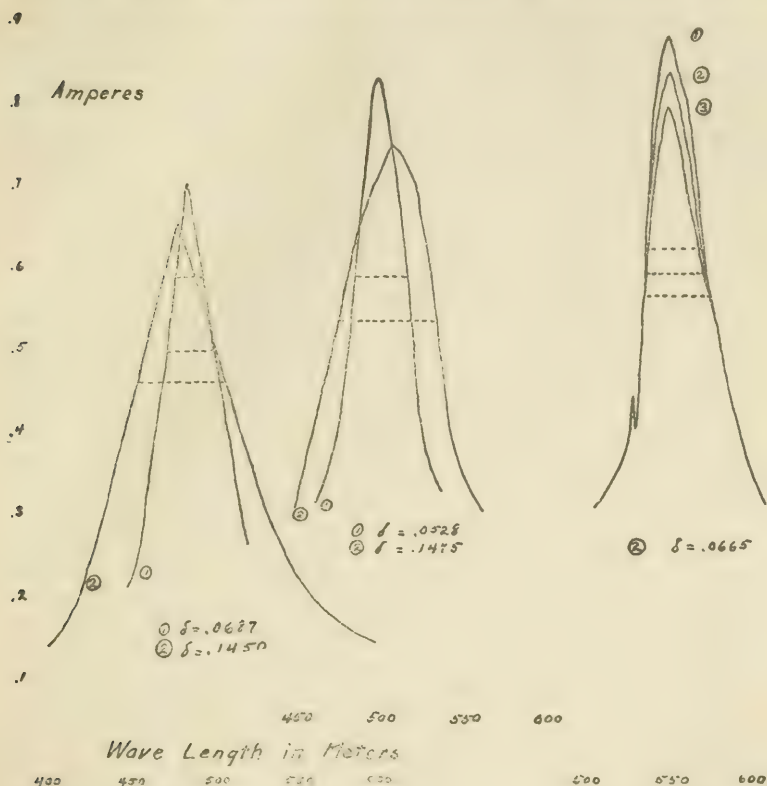


Fig. 3

can be brought about by the installation of proper ground connections. Curve 2 was obtained with clamp contact ground connections on a radiator. Curve 1 was obtained after a ground on the gas system and one on the water system had been added, with copper strap used for ground leads and soldered connections in all cases. The decrements were calculated from the Bjerknes formula $\delta_1 + \delta_2 = \frac{\pi C_1 - C_2}{2C_r}$

where δ_1 = decrement of aerial oscillations, δ_2 = decrement of measuring circuit, and C_1 and C_2 are those values of the variable capacity

corresponding to aerial currents (on either side of the resonant capacity C_r) which are .707 of the maximum current in the wave meter. The decrement $\delta_2 = \frac{TR}{2L}$ where T = oscillation period and L and R are respectively inductance and resistance of the wave meter circuit.²

It is seen that the decrement is less than half as large after the improvement in connections. The middle pair of curves shows the effect of an increase in the length of the spark gaps, six being in series. With the large gaps the decrement was .147 as against .052 with as close gaps as it was possible to obtain. Undoubtedly this is partly due to the fact that conditions approaching impact excitation are possible only with small gaps. When large gaps were used the wave meter circuit was coupled more loosely to the aerial, since with large gaps more power is necessarily sent to the aerial.

The right hand group of curves were constructed from data obtained with four of the rotating gaps cut out. This left two gaps in series, and they were not very small gaps (in order to transmit reasonable power to the aerial). The three curves were obtained for three different lengths of spark gap, and show how the power increases with increased gap length, but that there is no great change in the value of the decrement. This is in decided contrast to what was found for the six gaps, possibly because in that case we were able to get a much larger percentage change of gap length, but more likely because variations in spark gap conditions are more noticeable with a large number of gaps. With the two gaps the wave meter always indicated the presence of a noticeable amount of energy in a second wave, as the graph shows a secondary maximum. Thus the conditions with a small number of gaps give a larger decrement (.066) than those with a larger number (.053).

To summarize, the multiple rotary gap gives more approximately a quenched spark and a better decrement in the aerial system when there are a large number of gaps used in series than with two gaps in series. This seems to be in agreement with previous investigations and theory of impact and pseudo-impact excitation.

Radioelectric Station,
University of North Dakota,
July 30, 1913

2. Zenneck, *Drahtlose Telegraphie*, s. 112.

Radio-Activity in North Dakota

GEORGE A. ABBOTT,

Professor of Chemistry, University of North Dakota

THE discovery of the radio-active elements may be said to mark a new epoch in modern science. Not only has it led to a very rapid increase in our knowledge of the intimate relation existing between matter and electricity, but it has also literally revolutionized our former conception of the nature and constitution of matter and revealed the existence of vast stores of energy, hitherto unsuspected, bound up in the atoms of matter. The experimental results obtained in the study of radio-active phenomena have furnished a striking confirmation of the old atomic theory, but at the same time they indicate that the chemist's atom as formerly conceived is not the smallest unit or subdivision of matter; on the contrary they make it evident that the atoms are very complex systems composed of smaller units, some, and possibly all, of which are electrical in nature. Thus it comes about that now even the internal structure of atoms is made the subject of serious experimental study.

In the attempt to explain the complex phenomena of radio-activity the well-known theory of atomic disintegration was advanced by Rutherford. According to this theory the atoms of the radio-active elements are undergoing spontaneous disintegration into a series of new radio-active substances possessing physical and chemical properties different from the parent substance. Such changes are accompanied by the release of astonishing quantities of energy and the emission of characteristic radiations consisting of light fragments of the original atoms expelled with enormous velocities at the moment of the explosive disintegration. This theory has furnished a satisfactory explanation of the great body of experimental facts discovered by the numerous active workers in this field and it has served to stimulate and organize their efforts. The discovery by Rutherford and Soddy of the continuous production of helium from radium was a direct experimental confirmation of the disintegration theory, while the work of many other investigators, and especially the brilliant achievements of J. J. Thomson and his co-workers in the study of the electric discharge in gases, have thrown much additional light on the constitution of the atom.

It is obvious that the influence of such fundamental and far-

reaching generalizations concerning the nature of matter and energy must sooner or later be felt in every branch of science. Already the discovery of the wide distribution of the radio-active elements in the universe has led to many new interpretations of natural phenomena in Astronomy, Geology and Biology. The conception of evolution has been extended to the inorganic world and many hitherto conflicting conclusions and inconsistencies of the separate sciences have been explained and harmonized. At the same time interesting questions have arisen concerning the influence of radio-active substances upon the growth of plants and the health of animals, and the preparation of the radio-active substances in concentrated form has supplied the physician with a unique and powerful weapon of unknown possibilities for the attack of disease.

The study of the occurrence and distribution of radio-active substances in the earth has become a matter of interest and importance. In Europe such investigations have been more numerous and extensive than in America where comparatively few regions have been systematically examined. Notable work has been done, however, by Rutherford, Eve, McLennan and others in Canada, while in this country the admirable work of such investigators as Boltwood, McCoy, Schlundt, Moore, Parsons, Bumstead and Wheeler and others is well known. The results of these investigators are interesting and they suggest the importance of making a systematic radio-active survey, not merely for the purpose of locating possible commercial sources of radio-active substances but in view of the importance of such information in the study and interpretation of many scientific problems.

On account of the peculiar geological history of North Dakota a radio-active survey of this region seemed likely to prove interesting and the present investigation was made as a very modest contribution to such a survey. The work was begun during the second semester of 1913, with the assistance of Miss Gretchen Oeschger who conducted much of the preliminary preparation of samples and made many of the qualitative tests. The limited time available for the work has made possible only a preliminary reconnoissance, but in view of the fact that no investigations of this nature have been made in this region, it has seemed advisable to communicate the results at this time.

The methods used in this investigation were substantially the same as those employed by Schlundt and Moore in their field tests

in Yellowstone National Park.¹ For most of the measurements an electroscope of the C.T.R. Wilson type was used. It was designed according to the specifications of Schlundt and Moore and constructed by the University mechanician. It was standardized by the method of Boltwood, and the value 3×10^{-4} was found as the factor necessary to convert the micrometer scale reading to the uranium standard. The radium constant employed was the product of this factor into the ratio 3.8×10^{-7} , viz., 1.1×10^{-10} . Another electroscope of the Curie type was constructed for the convenient examination of solids. The scope of the present study included the examination of a variety of typical surface and artesian waters and a few samples of clays and soils. Qualitative tests were made to determine the presence of thorium and radium emanations and quantitative measurements of the radium in stored samples by the emanation method. In the examination of waters the measured sample of not less than one liter was boiled in a flask and the gases evolved mixed with some air were collected over a solution of potassium hydroxide in a Schiff's nitrometer. After standing ten minutes or more for the decay of thorium emanation the gases were introduced thru a drying tube into the electroscope. The activity was then determined in the usual way by noting the rate of fall of the charged aluminum leaf at intervals of 15 to 20 minutes, during several hours. The maximum rate of discharge obtained about three hours after the introduction of the gases was the value used to calculate the radium content of the sample. As the water samples tested had been previously stored in the laboratory in tightly stoppered vessels, the activity observed must be due to the actual presence of thorium and radium salts in the water and could not have been derived from emanations from any other source. In testing for the presence of thorium in waters, air was aspirated thru a sample of several liters then thru a drying tube and into the electroscope. The current was interrupted and the measurements begun immediately. The rapid decay of the initial activity reaching approximately half value in about one minute was characteristic of thorium emanation. No attempt was made to detect actinium emanation. In the examination of solids the methods of Strutt were in the main employed. Water residues, boiler scale, etc., were dissolved in hydrochloric acid and the solutions together with the small amounts of insoluble residues were stored for more than a month in tightly stoppered vessels. After the lapse of the time of storage any emanation which had accumulated was boiled out and examined

1. Bulletin of the U. S. Geological Survey 395, 1909.

after the manner of testing the water samples, the storage flask in these tests being used as the boiling vessel. Clay samples required more laborious treatment. After being ground to pass a 100 mesh sieve, they were fused with alkali carbonates, extracted with water and the soluble portion was stored. The residue was then treated with hydrochloric acid and stored separately. In some cases the clay was decomposed by treatment with hydrofluoric and sulphuric acids, heated to expell excess of acid and the water solution and residue stored.

RADIO-ACTIVITY OF WATERS

No. 1. Water from "English Coulee" on the campus of the University of North Dakota. This ravine receives surface drainage from the gumbo clay of the old lake bed of Lake Agassiz and also some water from a brackish flowing well. Thorium emanation was easily detected in the stored sample, and the value found for the quantity of radium in equilibrium with its emanation was 16×10^{-12} grams per liter. The leak of the electroscope due to thorium was more than twenty times the rate due to the radium.

No. 2. Water from the salt well flowing into "English Coulee." This water contains both thorium and radium, but in less amount than the coulee itself.

No. 3. Water from "Salt Coulee" near Great Northern Railway bridge at Ojata, N. D. This coulee drains a large "alkali flat" or marsh and is fed by numerous salt springs which break thru the marshes. Their location is marked by a very characteristic rank growth of reeds which by successive growth and decay have elevated the outlets of the springs several feet above the level of the surrounding marsh. This coulee water contains thorium and the amount of radium was found to be 44×10^{-12} grams per liter.

No. 4. Water from "Big Salt Spring" on the Peterson farm about one mile south of Ojata. This is one of the strongest flowing salt springs examined. The water flows into "Salt Coulee." It is only slightly radio-active, but shows traces of both thorium and radium. (Compare with sample No. 5.)

No. 5. Water from a smaller salt spring on the Peterson farm south of Ojata. This spring is only a few hundred yards from No. 4. The flow is small. The amount of radium is 44×10^{-12} a value identical with that found for the coulee water itself. Thorium is also present.

No. 6. Water from a large salt spring near Kelly. The formation resembles that of the salt coulee above described. This spring

is large and located at the edge of the coulee. In wet seasons it is submerged. Only small amounts of thorium and radium were indicated. (Compare with sample No. 4.)

No. 7. Water from a smaller spring near Kelly. This spring is about a quarter of a mile distant from No. 6. The amount of radium in this sample was 50×10^{-12} grams per liter. Thorium was also present in notable amount.

No. 8. Water from a flowing well at Ojata. Traces of radium and thorium were detected.

No. 9. Water from a flowing salt well on the farm near Kelly. This water is quite salty to the taste, but stock drink it freely and seem to suffer no ill effects from it. It is only slightly radio-active.

No. 10. Artesian water from Forman, N. D. Depth of well unknown. Radium 45×10^{-12} . Thorium present.

No. 11. Artesian well at Grafton. Radium 22×10^{-12} .

No. 12. Artesian water from Pembina. This water shows radium 16×10^{-12} grams per liter.

No. 13. Water from a shallow well at Pembina. Depth of well twenty feet. Radium found 10×10^{-12} grams per liter. Thorium detected.

No. 14. Artesian well near Forest River, on Minnesota side of Red River, near the river. A very salty water, the solids amounting to almost five per cent. The amount of radium was 110×10^{-12} grams per liter.

No. 15. Artesian water from Jamestown. Only a trace of radio-activity.

No. 16. Water from a driven well at Mohall. This well is reported to be 400 feet deep and natural gas is said to escape from it. No radio-activity was detected.

No. 17. Water from Devils Lake. This sample from Creel Bay had stood in the laboratory in a glass-stoppered bottle many months. No radio-activity was detected.

No. 18. Water from the Missouri River at Mandan. Stored sample gave radium 12×10^{-12} grams per liter.

No. 19. Water from the Red River at Grand Forks. Distinct traces of thorium and radium.

No. 20. City tap water at Grand Forks. No radio-activity was observed in a large number of samples tested at different times. This water is pumped from the Red Lake River near its junction with the Red River. It is treated with aluminum sulphate and lime and filtered thru a mechanical sand filter.

TABLE I.
Radio-Activity of Waters—Summary of Results.

Sample Number	Nature of water	Location	Thorium	Radium grams per liter $\times 10^{-12}$
1.	"English Coulee".....	University	Present	16
2.	Salt well	University	Trace	Trace
3.	"Salt Coulee".....	Ojata	Present	44
4.	Salt spring	Ojata	Trace	Trace
5.	Salt spring	Ojata	Present	44
6.	Salt spring	Near Kelly	Trace	Trace
7.	Salt spring	Near Kelly	Many \times Ra	50
8.	Flowing well	Ojata	Trace	Trace
9.	Flowing salt well.....	Farm near Kelly..	Trace	Trace
10.	Artesian water	Forman	Present	45
11.	Artesian well	Grafton	Trace	22
12.	Artesian well	Pembina	Detected	16
13.	Shallow well	Pembina	Detected	10
14.	Artesian well	Near Forest River... but on Minn. side... of Red River	Present	110
15.	Artesian well	Jamestown	None	Trace
16.	Driven well	Mohall	None	None
17.	Devils Lake	Creel Bay	None	None
18.	Missouri River	Mandan	Trace	12
19.	Red River	Grand Forks	Detected	Trace
20.	City Tap Water.....	Grand Forks	None	None

RADIO-ACTIVITY OF SOILS AND CLAYS

Some of the ooze from the bottom of "English Coulee" was dried and 50 grams of the dry material was treated with hydrochloric acid and stored more than a month. The amount of radium then found by the emanation method was 33×10^{-12} grams or $.66 \times 10^{-12}$ grams per gram of solid. A value less than half of the mean value found by Strutt for rocks, 1.4×10^{-12} . This would indicate that very little of the radio-active material is precipitated with the carbonates of calcium, magnesium and iron deposited by the water upon standing, a fact observed by other investigators. Upon addition of a small amount of barium chloride to some of the coulee water the barium sulphate precipitate was found to be slightly radio-active.

Three samples of clay from Dickinson and Hebron were only slightly radio-active. The clays of the Red River valley and the old lake bed of Lake Agassiz contain both thorium and radium in small amounts. It seems probable that the thorium and radium found in the waters of the valley may be derived from the glacial silt of the old lake bed. The presence of thorium in these waters is noteworthy.

Experiments were made to detect the presence of radio-active emanations in the soil of the valley. A tube was introduced into the soil of the university campus to varying depths from 6 inches to 2 feet. The gases from the soil were aspirated by a water pump thru cotton to absorb dust, then thru a drying tube into the electro-scope. The rate of discharge of the leaf upon stopping the air current was characteristic of both thorium and radium emanations.

The results of a typical measurement are shown in Figure 1. The values of the activity are shown on an arbitrary scale as ordinates and the time in minutes as abscissae. The activity after five minutes is al-

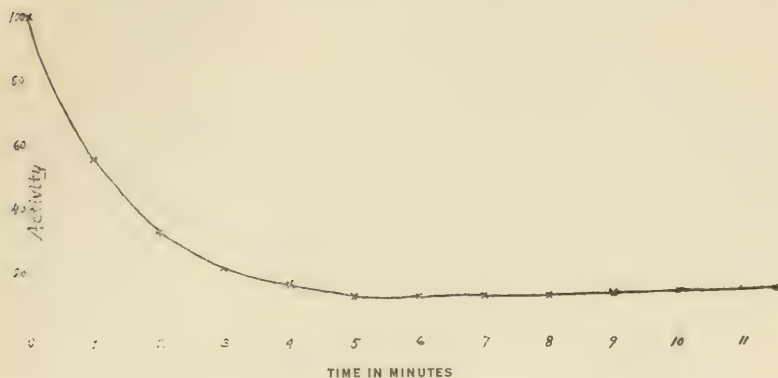


Fig. 1—Decay Curve of Emanation from Soil of Campus

most entirely due to radium emanation showing its characteristic slight rise in value. The rapid decay to approximately half value in one minute is characteristic of thorium emanation. During these ex-



Fig. 2—Decay Curve of Stored Emanation

periments some of the gases from the soil were passed into a flask and stored for ten minutes or more during which time the activity due to thorium emanation disappears practically completely. The

remaining activity due to radium shows the characteristic rise. The results are shown graphically by the curve, Figure 2. No great differences were noted in the activity obtained at different depths, altho the highest activity was observed in the porous loose clay near the surface.

An interesting check upon the measurements of the activity of a water sample was obtained by examining the activity of the water residue obtained by evaporating water from the English Coulee. For this purpose 15 grams of the residue was dissolved in hydrochloric acid and stored. The amount of radium in the stored sample was then determined by the emanation method and found to be 6.6×10^{-12} grams per gram of solid. This is a value somewhat higher than the values obtained by Schlundt and Moore for water residues from the hot springs of Yellowstone National Park. Their values were:²

Main Spring -----	4.33×10^{-12} g. radium per gram.		
New Blue Spring -----	5.4	"	"
Dedolph Spring -----	None		
Hot River -----	2.81	"	"
Giant Geyser -----	None		

Altho the amount of radium emanation in the springs of Yellowstone National Park is in most cases much greater than the quantity of emanation found in the waters of this region, the actual radium content of the latter is in some instances higher. It should also be noted that the activity of the salty waters is in most cases higher than that of sea water. It is also interesting to compare the results in this region with those obtained by Eve³ for the waters of the Caledonia Springs, near Ottawa, Canada. The five springs examined gave values of radium varying from 10 to 18×10^{-12} grams per liter. The gases escaping from three of these springs however showed considerable activity. The values for the amount of radium in equilibrium with the emanation in one liter of gas were 620, 420, and 210×10^{-12} grams.

It is hoped that this preliminary investigation may soon be extended to include the examination of other samples of waters and rock materials, as well as the gases escaping from the springs and wells. The study of the radio-active conditions of the atmosphere under varying conditions should also prove interesting especially in view of the widespread occurrence of thorium in the waters of this region.

2. U. S. Geological Survey, Bulletin 395, page 25, table 4.

3. Trans. Roy. Soc. Can., 1910, 4 (Sect. 3) 53-4., thru C.A. 6, 712.

The Relation of Ideals in Scientific and Technical Education to Industrial Development

EARLE J. BABCOCK,

Professor of Industrial Chemistry and Dean of the College of Mining Engineering, University of North Dakota.

WE are deeply interested in and proud of the material development of our great country, but we should have an equal interest and pride in the ideals and growth of our great educational system.

We rejoice that the people all over our land are so willing to provide for inculcating in our youth high ideals and broad culture, and that they are so willing to aid the technical and practical training of those who are engaged in the great industries, in their various forms, so as to render more pleasant and more productive the great and honorable life work in which our people may be engaged.

It is to the greater success and broader achievements of our educational system that we look with hope for the gradual solving of many of the sorely perplexing social and industrial problems of today. The education which is demanded, even more in the future, is one which will give a higher ideal of social and individual life and which will give its possessor such a power over nature that he will be able to get and to give to his fellows more of the good things which a bountiful God has intended for the uplifting of man. Prosperity brings to man not simply wealth, comforts and luxuries, but great duties and tremendous responsibilities, and every good citizen seeks to know and to fulfill these duties so that when he leaves to others the activities of life, he can feel that he has done something to make the world richer and better for his having been in it. These are principles which should be deeply laid as fundamental in our industrial life and development.

It is with such a thought for our own lives and for those of others, that we seek to become more thoroly familiar with a world in which man is constantly striving to bring to his aid more fully all the material and power that nature has to offer, and that we seek to secure such a system of education and such a knowledge of science as will bring these results. A comprehensive education must be one

which will make it possible for the young man gradually, tho efficiently, to gain knowledge, the use of hands, and a skill which, as he grows to manhood, will fit him to pursue successfully his life's work. The subject of education should be considered from both cultural and utilitarian points of view. Neither should be lacking.

To meet more fully the complex demands of our industrial life and to grasp and solve a great variety of problems constantly pressing themselves on one engaged in such work, there is a rapidly growing demand for men of clear conception, good judgment, wide extent of knowledge, and thoro scientific training. Our people owe it to themselves, to their children, and to the nation, to foster every means which will encourage the more perfect development of our great industries and sources of individual and national comfort, wealth and power, but it is their even more urgent duty to foster a truer respect for right, a better conception of duty and the nobility of work and a higher ideal of life.

While we should ever hold before our citizens and especially our youth the cultural and the inspirational, we must at the same time provide a training which will elevate and beautify the activities of daily life. Fortunately we do not all have the same desires or thoughts or ways of doing. The result of this difference is the development of literature, industry, science, arts, in short, that wonderfully diversified thought which has brought about the civilization of today and made life worth living. Contrary to the notion once so common among people, even among educators, science is a power in expanding and elevating the imagination. For example, where can one find a wider field for its exercise than that open by the revelations of subjects like physics, chemistry, geology, or astronomy? As the mind wanders over boundless space, dwells in almost illimitable time, witnesses the display of measureless power, studies the wonderful adaptations of nature and the working out of infinite design, one lives in a wonderful realm of inspiration, beauty and grandeur. It is by the proper study of such subjects that man is made to feel his dependence and to reach out toward the Infinite. Such sciences elevate and enrich the imagination, ennoble the intellect and induce lofty inspirations; they also develop the esthetic nature of man, for only as we ask of nature will her wonderful beauty be unfolded to us.

The prosperity of our people does not depend upon our natural resources alone, but as much upon integrity, enterprise, industry, education, and skill. With reasonable natural resources on which to base the industries of life that state or that nation which possesses

these characteristics of manhood in the highest degree is certain in the end to attain the highest prosperity. It is, therefore, our duty to foster whatever will promote the strongest character in our people, cultivate habits of industry, develop and stimulate intelligence and impart the most useful knowledge; in short, whatever can make our civilization stronger and better.

We are constantly reminded what study and thoro scientific experimentation can do for the development of mining, agriculture and manufacturing, and when in time this shall have become a still stronger factor in our industrial and educational system, then we shall realize more fully the enormous advantages to be derived from a training which gives a knowledge of the laws of nature and a skill and power capable of mastering difficulties and problems previously beyond our comprehension. Then we shall see that great as have been our attainments, still science in its mission has made only the beginning of what it is capable of doing toward aiding us to secure wealth, comfort, refinement, culture, inspiration, in short, that power of mind over matter which lifts man above the beast and renders possible that growth of mind and soul which makes life strong, noble, and beautiful.

Every university and college or institution of higher education, should be the home of such principles and missions and should be actuated by a sincere desire to serve the people in every way possible, not only in aiding the investigation and development of our resources and our industrial, civic and social problems, but also by training young people so that they shall be well fitted to fill important places in life with credit to themselves and the industry or profession in which they are engaged, and who shall have sufficiently broad and high views to become active, useful and noble members of society.

A university must, in reality, not only be the seat of wide learning, but also the pioneer and leader in any good work which it can perform for the permanent welfare and upbuilding of the commonwealth. The modern university must of necessity be, in a sense, a center to which people will look for guidance, knowledge, and all that adds materially to the great activities of life.

The progressive university of today should not only give instruction, but also be a producer of knowledge, a center of research. Scholarship must become in some degree creative if it is to become serviceable. In every line of material progress we see the effect of scientific research. The great progress by which our civilization is

distinguished has been founded upon the work of earnest, toiling, truth-seekers, and not a little of this work has been done within the walls of our universities.

We must place first inspiration and ideals, but we must couple with these every kind of practical service. We must teach, we must investigate and we must give to the people the best in all that makes for the well rounded life of the citizen.

Education in its highest development must put first inspiration, the ideal, the cultural, but it must be remembered that culture alone, without a living purpose behind it, is not all that is needed. It must become productive or be linked to daily life.

The greatest glory of our universities or indeed of our educational system in any part is not found in numbers or in equipment, but in the men who are sent forth if they have learned *how and will do* a man's work in the world.

The greatest function of an educational system, or an educational institution is not *simply* to impart knowledge, but rather to develop strength and wisdom, the love of truth and right and an inspiration which will lift men to higher thoughts and nobler aspirations and better fit them to become energetic, intelligent and helpful citizens amid all the activities and industries of life.

Engineering Reports

EDWARD BEATTIE STEPHENSON,

Assistant Professor of Physics, University of North Dakota

THE undergraduate engineer is usually so afraid that the English professor will, in some subtle way, instil in him a love for classical literature and possibly turn him into a poet, that he hardens his heart and closes his mind to the opportunity that he has. To the engineer energy is valuable only in so far as it is available—can do work—and the same may be said of the facts and experiences that the engineer must be continually acquiring. They are valuable in direct proportion to their availability.

An essential part, and in many cases a large part, of the work of an engineer consists in making a formal report on some project under consideration.¹ This may be only a short record in a note book or it may be a report on a technical investigation of some great project like the Panama canal. In any case it must include a certain amount of data with description, and the availability of this information depends to a large extent on the manner and form in which it is presented. Now skill in writing a report is no more an inherent faculty than is skill in integrating a differential equation. It is an acquired art that involves a knowledge of the fundamental principles and continual practise. The importance of this phase of the engineer's work has often been unrecognized by the undergraduate (not to mention his instructors) and he has neglected or scorned it with the result that he has not acquired the ability to make his information most available. Too many reports are like a low grade ore, the amount of valuable material finally obtained does not pay for the labor necessary to extract it.

Viewed solely from the efficiency standpoint it pays to have the writer put considerable time and study on the composition of his report. Suppose the operating manager of a railroad requires a report on the maximum tonnage for a given type of engine. This report is to be sent to one hundred men who make up the trains at the different yards and who are to be guided by the facts found in the report. If the presentation of the report in one form rather than in another

1. That large engineering firms consider this phase of the work important is evidenced by the fact that the writer recently spent three months at the Underwriter's Laboratories Inc. of Chicago working with their engineers on the standardization of their reports. The writer wishes to acknowledge his indebtedness to Mr. W. C. Robinson, chief engineer, and to the other engineers for many practical suggestions in this work.

will save each reader five minutes in the time necessary to master it, it is a saving to the railroad to have the writer spend an extra eight hour day in working the report into the better form. And when we consider the fact that an article on an important subject in a technical journal may have thousands of readers, it is really quite morally reprehensible for a conservationist, such as every engineer should be, to waste the reader's time when more care and attention on the part of the writer would have made such waste unnecessary. To determine what this better form is requires a technical knowledge of the subject of composition and *also* a mastery of the subject matter and practise in actually presenting it.

A recent article² suggests that the increasing specialization in our universities is partially responsible for the condition where the student either "acquires an elegant style but has nothing much to say with it" or "knows a great deal but has no style about him," and it seems quite reasonable that when the English professor insists that the engineer take a certain amount of English, that the engineer may insist that his English professor know some Engineering. The literary style that is admirably adapted to a theme on "A Beautiful Day in June" is apt to be lacking in scientific accuracy when applied to the description of a hydro-electric plant, and the engineer is more interested in the latter. The scientific and technical journals, the text books, the government reports, and the formal reports necessary in all engineering work are certainly equal in importance, if not quite equal in volume, to the purely literary magazines and books and their writers should have literary as well as scientific training.

The character of an engineering report must, in general, be determined by a consideration of the persons to whom the report is to be made. The business man who consults an engineer in regard to some project desires an authoritative opinion on a technical matter which only an expert can understand. The detailed facts and the method of reasoning by which the conclusions are reached are of minor importance. A report to him must be in reasonably non-technical language with such facts and arguments as will appeal to his common sense and general type of mind. To say that a perpetual motion machine is impossible because it would violate the second law of thermodynamics is a perfectly satisfactory statement to a physicist but it would hardly appeal to the man on the street. On the other hand when a chief engineer requests a report from an assistant, he

². Science and Journalism, E. E. Slosson, *The Independent*, p. 916, Apr. 24, 1913.

wants carefully prepared and analyzed data and is fundamentally interested in the methods of investigation and detailed facts obtained, for on these he wishes to form his own expert opinion. The pure scientist is especially interested in the original data and the exact conditions under which they were obtained. History has shown that even the best investigators have sometimes been mistaken in the interpretation of their results, but the experimental facts of a careful investigation are good for all time. Under modern conditions the theoretical and practical work of the engineer is becoming so closely allied that it is common practise, when important original investigations have been made, to publish the results in the scientific and technical papers and this phase of the work deserves consideration.

It is not the purpose of this article to discuss the laws of composition or go into details of expressions to use or not to use, but to consider a few fundamentals that are essential from the engineering point of view and to elaborate some ideas and methods that should be better known and practised. What then are the essential qualities of an engineering report? First, it should consist of a large proportion of experimental facts. Second, these facts should be carefully analyzed and *conveniently* presented. Third, there should be more or less elaborate discussion of the theory involved in the work and of the conclusions to be drawn from the facts presented. Fourth, the style of composition should be direct and forceful with no attempt at fine writing. Glittering generalities should be eliminated as prima facie evidence of a lack of exact knowledge and each sentence should be carefully inspected for superfluous words.

The more detailed points to be noted in writing a report are considered under the following headings which also serve as a general outline. It should be understood that no one report need cover all the points and that the elaboration of any particular point depends on the purpose for which the report is written.

INTRODUCTION

The introduction to a report should contain a concise statement of the object of the investigation with any necessary explanation of the reason for undertaking it, and with some reference to previous work in the same line or any special conditions that may exist. The reader should be able to decide from the introduction whether or not he cares to read the whole article or book.

DESCRIPTION

Nearly every report requires a certain amount of descriptive matter—description of apparatus, object tested or work constructed—and the dominant idea should be to give the reader as comprehensive a grasp of the subject as possible in the easiest and quickest way. The present tendency is away from long pages of written description and towards a greater use of diagrammatic drawings, free hand sketches and photographs. A diagrammatic drawing of good proportion and freely lettered is generally better than a page of description. It is useful for a comprehensive view of the whole and at the same time permits a close study of any particular point without having to go thru the whole description. The development of the apparatus for photography has made it possible for an intelligent amateur to take consistently good pictures and this method of description is being freely used in addition to the diagrammatic drawings. It has an added advantage as a method in eliminating the personal equation and showing things exactly as they are. Thus a series of daily photographs makes an admirable record of the progress of construction of a building. Photography is even being used as a method of surveying under conditions that are impossible in the usual manner.

The written part of the description is simplified by references to the drawings and photographs, and detailed dimensions, etc. should generally be given on the drawings and not written out unless some legal requirement makes it necessary. The description should follow some definite order, possibly that in which the apparatus functions or in which the work was constructed, and in it such technical terms as will be used later should be defined.

GENERAL PLAN OR WORKING HYPOTHESIS

The scientific method involves the use of some general plan or working hypothesis in the carrying out of any investigation. If the method is well established or standardized a mere reference by name or to previous work of the same kind may be sufficient, but in original work to subject to experimental test some hypothesis that may have been obtained as the result of philosophical or mathematical deductions, a full statement should be made concerning both the hypothesis and the experimental test. This paragraph or chapter should conform to its title of General Plan in not going into details but should give a comprehensive view of the whole subject.

METHODS OF INVESTIGATION

The experimental method by which a theoretical point is to be tested is always more or less independent of the theory and this fact should be kept in mind when writing the report. Thus theoretically, to measure the velocity of sound it is only necessary to find the time between the production of the sound and the receipt of it a given distance away, but an experimental determination might require the use of elaborate electrical apparatus and the perfection of many mechanical details. The casual reader may be satisfied with the reading of the general plan while the technical reader is interested in a minute description of the many points which make an experimental determination possible and determine its convenience and accuracy.

In using methods or theory that are not strictly original the writer should give full reference to the original sources unless the information is common knowledge.

If the investigation covers a number of different lines it is advisable to separate them under distinct headings for clearness of presentation. It also frequently happens that a reader is interested in only one phase of the subject and this separation enables him to follow that phase in detail without having to read the whole report.

DATA

From the scientific point of view the original data are by far the most valuable and should always be carefully preserved, but for a formal report the limitations of time and space frequently necessitate some generalization or derived results. The presentation of data in their most available form is a problem worthy of very hard study. As an illustration we may take the problem of a geographical survey of a certain territory. The original data are taken in the form of measurements of distances in certain directions and of elevations at certain points. These may be arranged in the form of tables but only an expert would be able to form a mental picture of the actual appearance of the country from reading these tables. The information is not yet available for the average man. To make it so it is usually presented in the form of maps. We have been trained to read simple maps and have a general understanding of the conventions used so that we quickly grasp the "lay of the land" in a two-dimensional plane. To give an idea of the elevation some form of contour map is used and this permits the representation of three dimensions in one plane. Maps are a good illustration of the gen-

eral method of graphical representation and we see what a powerful means it is of making large masses of material available.

It seems unfortunate that the simple method of graphical representation is not more generally introduced early in the grades and fully developed in the study of algebra and geometry. It is a great aid in the visualization of algebraic equations in the form of curves, and in the study of the relations of two or three variables, as time and temperature, pressure and volume, or temperature, pressure and composition in solutions, it is a powerful means of analysis. The plotting of data in the form of curves is a very common method to the scientist but in non-technical writing it seems to be almost unknown. Considerable experience has shown too, that it takes a year's hard drilling to teach the average sophomore to plot his data intelligently with a proper choice of coordinate scale and with some regard for the usual conventions.

The curve is also useful as a means of averaging data, as an indication of the accuracy of readings, as a suggestion of the general law governing the relation of the variables and for calling attention to particular points that may require closer investigation, but its most important function is to give at one glance the whole course of the related phenomena, thus reducing the written description to comment on the most interesting features. It is impossible here to go into detailed directions for work of this kind, but there are a number of recent books which discuss the subject fully.³

Another point which should always be covered in an engineering report is the accuracy with which the experimental work is done. Accuracy is purely a relative matter and the engineer must learn to judge how accurately his work should be done. In leveling for the foundation of a shed a few inches off level would not be a serious matter but in setting a large telescope, one hundredth of an inch variation might be inadmissible, or in weighing a car of stone it does not make any material difference whether a brakeman is standing on the car or not, but in a chemical analysis a single grain of dust might vitiate the whole weighing. Work should therefore be done with an accuracy that is determined by the conditions or object of the work, and this degree of accuracy should be expressed in per cent. To say that the results were "fairly good" or "satisfactory" conveys no real meaning because the standards of each reader differ. There are certain standards and conventions that should be understood in this

3. Precision of Measurements and Graphical Methods—Goodwin. Construction of Graphical Charts—Peddle.

connection. In writing a number there is a well established convention that as many, but no more, significant figures should be given than the writer claims the accuracy of his data warrants. Thus writing the radius of a circle as 10 cm. means that 10 is the nearest whole number and that the exact value may lie between 9.6 cm and 10.4 cm. If however the number is given as 10.0 the second cipher has the meaning that the measurement was made to tenths of a cm. and lies between 9.96 and 10.04 cm. There is a possible error in the first case of 5% and in the second case of 0.5%. The location of the decimal point is merely an indication of the units used and not of the percentage accuracy. Thus the numbers 12.3 cm, 123 mm, .000123 km all have the same number of significant figures and the same percentage accuracy altho the last one is carried to six places of decimals. In physical measurements we must discard the mathematical idea of absolute accuracy and learn that any measurement is only an approximation, that it takes careful work to get four significant figures and that six or seven figures are obtained only in a standardization laboratory. The ciphers before a number serve only to locate the decimal point and are not significant figures, but ciphers *after* the number are significant and indicate its accuracy.

Another important point is, that as a chain is no stronger than its weakest link, so a calculated result is no better than the least accurate factor or term in the calculation. For instance, in calculating the circumference of a circle whose radius is measured as 10 cm. it is quite absurd to use $\pi = 3.1416$ because the possible 5% error in the measurement of the radius, as shown above, is so large that $\pi = 3 \frac{1}{4}$ or $\pi = 3.1$ is as accurate as the measurement of the radius. A large per cent. of the labor of numerical calculation is absolutely wasted because of this lack of a proper knowledge of when to drop the figures that have no significance, and the appearance of accuracy that the retention of all the figures gives is misleading.

CONCLUSION

The conclusions of a report are the most critical test of the engineer's real ability. In the case of the consulting engineer it is usually necessary for him definitely to commit himself in a positive statement of opinion and just as his opinion carries weight in proportion to his professional reputation, so his reputation depends on the correctness of his opinion.

The conclusions should be grouped under a few main points and should be as brief and clear cut as is consistent with accuracy. In

case of a long report it may be advisable briefly to summarize the evidence on which each conclusion is based with page references to the details.

The consideration of a report under the headings Description, General Plan, Methods of Investigation, Data, and Conclusions has an object other than a mere matter of literary arrangement. First, there is the matter of convenience in enabling the reader to find and study the part in which he is especially interested at the time. In reading the literature on a subject there may be some phases that will be considered incidentally in widely varied investigations and it is a great convenience to be able to pick these out easily. Then there is, as there should always be, a separation of the permanent from the changing, of the personal from the impersonal. The chapters on description and on data are matters of fact, permanent and impersonal. The theory and the methods of investigation are constantly growing and improving, while the conclusions are subject to a large personal influence. Many an important fact has been discovered while working on a false hypothesis or in trying to solve an impossible problem, but if fact and fiction are properly separated the results may still be valuable. The reader should not be prejudiced against the experimental data by having a large amount of the theory and conclusions of the writer mixed in with them.

SUMMARY

If a report is of any considerable length there should be given in conclusion a summary which gives briefly the points which the writer has developed or established and which leaves the reader with an outline of the whole article. The idea may be illustrated by applying it to this article.

The necessity for the consideration of the writing of engineering reports both from the engineering and literary standpoints has been argued and illustrated.

A general outline for a report has been given with suggestions for special points under each heading.

The subjects of graphical representation, of accuracy and certain conventions in each case have been discussed more in detail.

Synchronous Motor as a Rotary Condenser

SAM R. RHODES,

*Assistant Professor in Electrical Engineering,
Clemson College, South Carolina*

IT has not been so many years since the utilization of alternating current energy was limited largely to illumination. Then, there was no problem of the inductive load. But the possibilities of the application of alternating current for motive power proved such a promising field that it was not long until the development of the induction motor.

This motor, on account of its simplicity in operation, low cost of accessories for control, its adaptability in one or another of its forms to such a variety of service, and, on account of its general reliability, has entered the field of motive power and is today to be found doing faithful service in almost every kind of work. In the home, in factory and in the mill, it may be found doing its work so well that it hardly receives attention and rarely provokes concern. It has met all competitors in the field of motive power and has proven a worthy adversary. Even the great steam engines that have driven the rolls in the steel mills and which seemed assured of place, have had to give way before the powerful and sturdy induction motor.

But with the coming of the induction motor has come a problem which has been a source of much annoyance to the manager of the generating plant, and that is, the problem of poor power factor.

All dynamos require excitation. Magnetism is the medium thru which mechanical energy is converted into electrical energy or electrical energy is transformed into mechanical energy. In the case of the induction motor, this magnetization is produced by an alternating current received into the same winding into which the power current is introduced. In other words, the same electric circuit serves a double purpose; it is the path for two currents, the one being the exciting current and the other being the power current. The induction motor is similar to the transformer in this respect; in fact, the induction motor is only a special type of transformer. The power current of the induction motor is in phase with the applied voltage.

But the exciting current is at right angles to the voltage and is commonly known as the wattless current. The phasal relationship of the voltage and currents may be illustrated in a simple diagram, Figure 1.

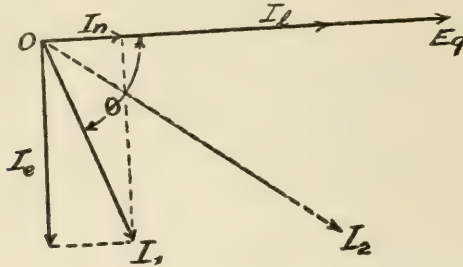


Fig 1

Using the counter-clock wise direction of rotation of vectors, let E_g represent to some convenient scale the voltage at the motor terminals. I_e represents the current required to excite the magnetic circuit, and I_n represents the wattful or power current required to overcome the resistance of the electric circuit, and the frictional resistance to rotation. Now the resultant motor current is I_1 . This is the current required at the given line voltage to run the motor without load. Cosine θ , θ being the angle of the lag of the resultant current behind the impressed voltage, is the power factor of the motor. This power factor is generally low when the motor is running light on account of the relatively large current required for excitation. As the motor is loaded the power component of the current is increased, but since the magnetic condition of the circuit is not changed materially, the exciting current remains approximately the same. Let the load be increased till the power current is I_e . The resultant current intake is I_2 . It then appears that the power factor has been greatly improved by simply loading the motor. It is also evident, however, that the power factor can not be unity. The power factor of commercial machines running light is probably about 20%, whereas the power factor at full load will average about 85%. There is considerable variation, however, depending upon the type of induction motor and the size.

If the motor load is a good fraction of the entire load of a generating station, and we assume that a good percentage of the motors are not fully loaded at any time, we would be safe in assuming the possibility of a power factor of the plant being as low as 80% and probably lower. Let us assume the power factor as 80%. What

effect will this poor power factor have upon the plant? In the first place, the possible output of the plant will be reduced from 100% to 80%; a loss of 20% of its capacity. This diminution in the possible output affects the entire plant, generators, engines, boilers and buildings, cutting down the output, lowering the efficiency and increasing the cost of electrical energy.

Not only this: but the requiring of the generators to furnish excitation to inductive loads has a tendency to make the generators regulate poorly. The lagging current has a demagnetizing effect upon the generator's armature which causes the terminal voltage of the generator to fall off badly in some cases. Then, too, there is an unnecessary I^2R loss in the line due to the line being required to carry a component of current which is not representative of power delivered.

To illustrate a condition which may be brought about by the acquirement of an induction motor load consisting of the various sizes of motors ordinarily found in a town having a miscellaneous group of small manufacturing interests, let us assume a generating station of the following description:

Capacity	1000 k.w. generators	costing	\$21,000
	1350 H.P. engines	"	32,500
	1350 H.P. boilers	"	20,000

Buildings, land, foundations, piping, switchboards, etc., bring the cost to \$110. per K.W. or \$110,000. If the power factor were 100%, the plant would be operated at its capacity. But if at 80% power factor, only 800 K. W. would be available and tho the operating costs might be reduced on account of decreased consumption of fuel, etc., the fixt cost would not be decreased. Hence the plant would suffer from increased cost of output and from limitation as to capacity. In this case 200 K.W. capacity is idle; not only is this idle, but the 800 K.W. is produced at lower efficiency and bigger cost. This is a very possible situation—a situation which many companies have been compelled to confront.

There are in general two solutions, the installation of larger generators, or the use of the synchronous motor. The generators may be of such K.V.A. capacity that they may furnish the exciting current as well as the power current of normal full load without over heating. In this case the boilers and engines and their accessory equipment would be of such size that they will be loaded when the generators furnish normal current at the poor power factor. That is, they

would have the same K.W. capacity as the generators and not the same K.V.A. capacity. By the use of a synchronous motor, the generators can be relieved of the exciting current of the induction motor load, so that they can operate at normal full load and unity power factor without over heating and with high power plant efficiency.

Which solution should be chosen depends largely upon local conditions. If in the design of a plant low power factor conditions can be anticipated, it would probably be best to install generators large enough to have ample current capacity to furnish, in addition to the power current, the wattless or exciting current of the inductive load. The speed of the generators might be a factor to be considered. If the machines are to be large slow speed units, having a high cost per kilowatt capacity, it is possible that a high speed synchronous motor having low cost per kilowatt might prove as satisfactory and at the same time might not entail as large an outlay. If the plant is an old one and has become overloaded at the low power factor, and this is a condition very frequently confronting the power plant manager, it may be economical to use a synchronous motor to relieve the plant of the exciting current of the load, and to make available the capacity in generators, engines and boilers which is not being utilized. There are several ways in which a synchronous motor may be used to relieve the generators. Some power consumer may be induced to operate a synchronous motor instead of an induction motor by extending the proper rate inducements. A synchronous motor-generator may be used in transforming alternating current power into direct current power for traction work. Or, it may even be a matter of economy to install a motor in the power house or some other convenient place and allow it to run idle, its only duty being to furnish the exciting current to the induction motors of the power system.

A synchronous motor used for the purpose of furnishing the excitation of magnetic circuits connected in a power system is frequently called a rotary condenser. The application of the name, condenser, to a synchronous motor used in this manner comes from the fact that the motor acts very similarly to a condenser placed in a circuit containing resistance and inductance. In such a circuit, the inductive part of the circuit and the condenser part are storers of electrical energy. Each receives energy temporarily from the power source and then gives it back to the system. This receiving and giving back of energy is so timed in the case of the two types of circuits, the inductive and the condensive, that they may be regarded as giving and receiving energy alternately from one another. If the inductive and condensive

circuits are properly adjusted, the current required for excitation of each may be produced by the energy stored up in the other. In other words, there will be an exciting current, which has a 90° relationship to the power current, flowing alternately from the inductance to the condenser and from the condenser to the inductance. With these two types of circuits properly adjusted, the generator is relieved of the duty of furnishing any out-of-phase current and is available entirely for power current. To relieve the condition arising in the central station on account of the induction motor load and the consequent requirement of an exciting alternating current, the static condenser could not be used because of its prohibitive cost. The synchronous motor will serve equally well and when so used, it is called a rotary condenser.

In order to show how it may serve as a condenser, and also what its operating characteristics are during such service, it may be well to consider some of the general characteristics of the machine. If two synchronous machines of the same voltage and frequency be brought to the same speed and approximately the same voltage they may be made to operate in parallel. If the prime mover of one be removed, this machine will take current from the other and will continue to rotate at the same speed, as a synchronous motor. The electrical conditions may be represented by the accompanying vector diagram, Figure II.

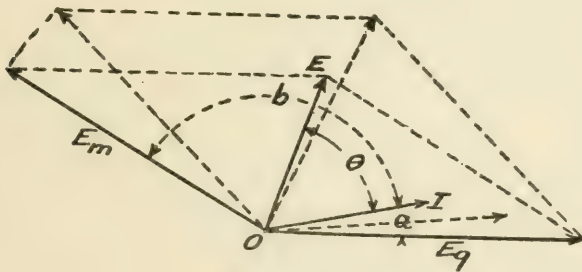


Fig II.

E_g = E.M.F. of the generator.

E_m = E.M.F. of the motor.

E Resultant voltage, required to force the current, required to operate the motor, thru the resistance R and reactance ωL of the circuit which consists of the armatures of the two machines and the connecting lines.

$I = E \div (R^2 + \omega^2 L^2)^{\frac{1}{2}} =$ current required to run the motor at synchronous speed under the given load conditions.

$\theta =$ Angle of lag of current behind the resultant voltage E .

$P' = E_g I \cos a =$ power output of generator.

$P'' = E_m I \cos b =$ power input of motor.

If a larger load is placed upon the motor, it does not slow down, as in the case of the direct current motor, in order that the counter electro-motive force may be reduced so as to permit the flow of the required increased current. The motor drops behind in phase until the resultant voltage is sufficient to circulate the required current. This may be seen in Figure II, the new positions of the vectors due to loading being shown by the dotted lines.

Since, theoretically E_g and E_m may have any angular relation with respect to one another, P' and P'' may both be positive, or one positive and the other negative. The case of interest to us in this connection is the case where P'' is negative and P' is positive. This is the condition illustrated in the diagram, Figure II.

The formulas $P' = E_g I \cos a$ and $P'' = E_m I \cos b$, are not very convenient on account of the difficulty of determining the angles a and b . These equations may be put in more convenient forms, forms involving known factors of the circuit, by means of the following transformations.

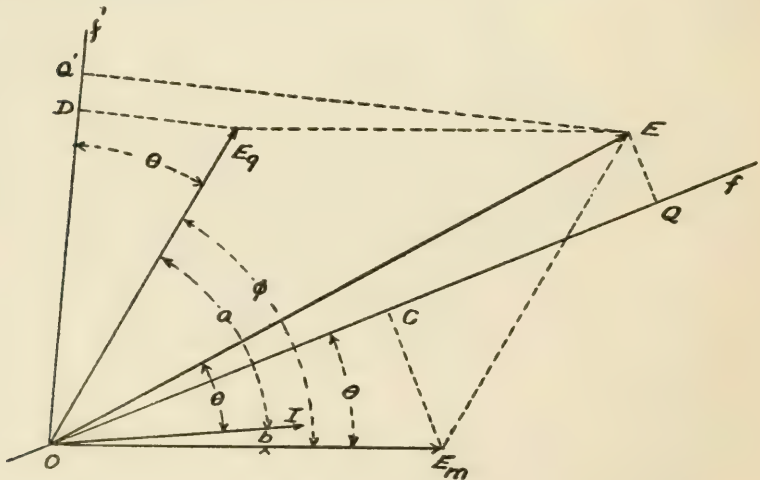


Fig. III.

As before, let

$E_g =$ E. M. F. of generator.

$E_m =$ E. M. F. of motor.

R = total resistance of the entire electric circuit.

L = Inductance of the circuit.

E = resultant voltage.

$I = E \div (\sqrt{R^2 + \omega^2 L^2})$ = current that will flow.

Now just as in Figure II, we have the equations of power of the two machines.

$$P' = E_g I \cos a \text{ and } P'' = E_m I \cos b \dots\dots\dots (1)$$

Draw Of and Of' making leading angles of θ° with E_m and E_g . Draw other constructional lines as indicated in the diagram.

$$\text{Now } OQ = E \cos b = I \sqrt{R^2 + \omega^2 L^2} \cos b.$$

$$\text{and } OQ' = E \cos a = I \sqrt{R^2 + \omega^2 L^2} \cos a$$

Substituting these values in the equations for P' and P'' ,

$$P' = E_g \frac{OQ'}{\sqrt{R^2 + \omega^2 L^2}} \text{ and } P'' = E_m \frac{OQ}{\sqrt{R^2 + \omega^2 L^2}} \quad (2)$$

$$\text{But } OQ' = OD + Q'D = E_g \cos \theta + E_m \cos (\phi + \theta)$$

$$OQ = OC + CQ = E_m \cos \theta + E_g \cos (\phi - \theta)$$

Substituting these values in (2)

$$P' = [E_g E_m \cos (\phi + \theta) + E_g^2 \cos \theta] \div \sqrt{R^2 + \omega^2 L^2}$$

$$P'' = [E_g E_m \cos (\phi - \theta) + E_m^2 \cos \theta] \div \sqrt{R^2 + \omega^2 L^2} \quad (3)$$

By assuming value for E_g , E_m , R and ωL and then by selecting a series of values for ϕ between 0° and 360° , the corresponding values of P' and P'' may be calculated and plotted as curves between power for ordinate and ϕ for abscissa.

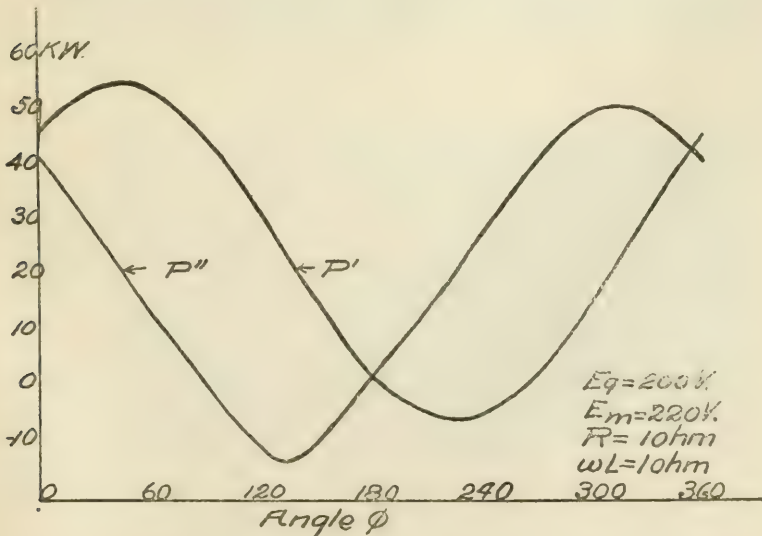


Fig IV.

It is seen (Figure IV) that each machine has a range of negative values thru which it operates as a synchronous motor.

The range of negative values may be determined by inspection of these curves, or they may be calculated for a given set of values of E_g , E_m , R and L by equating these equation to zero and solving for ϕ , the angle between E_g and E_m . By changing the value of motor e.m.f. E_m , leaving other values the same, the change in the range of negative values or motor operation may be determined. A simple circle diagram, Figure V, will serve the purpose very well also, and will permit the range to be found somewhat more readily.

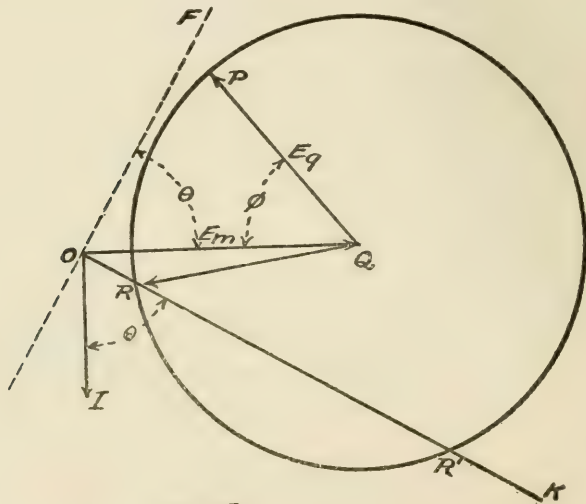
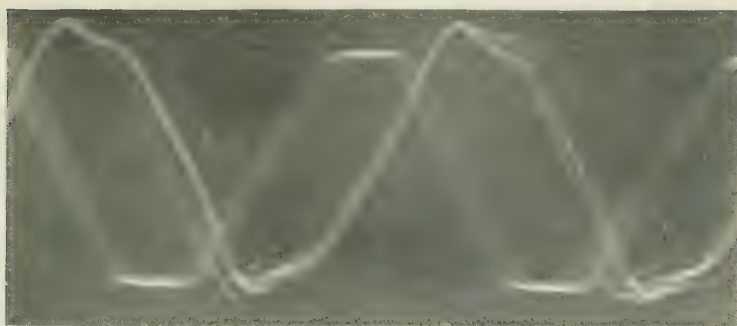


Fig. V.

Lay off in a horizontal position a line representing to scale E_m , the e.m.f. of the motor; about its right end, describe a circle of radius equal to the e.m.f. of the generator to the same scale as E_m . PQ in its rotation about Q describes all the possible angular relations of E_g and E_m . The line connecting O and P describes the position and value of the resultant voltage for the corresponding positions of E_g and E_m . From O draw a line OF making an angle of θ° with E_m . Then draw OK perpendicular to OF cutting the circle in R and R' . The intersections of OK with the circle mark the beginning and ending of the range of motor action. When E_g has the position QR , OR is the resultant voltage. The current lags behind OR by the angle θ . For this particular case the current line will be perpendicular to E_m . Hence $P'' = E_m I \cos 90^\circ = 0$. Consid-

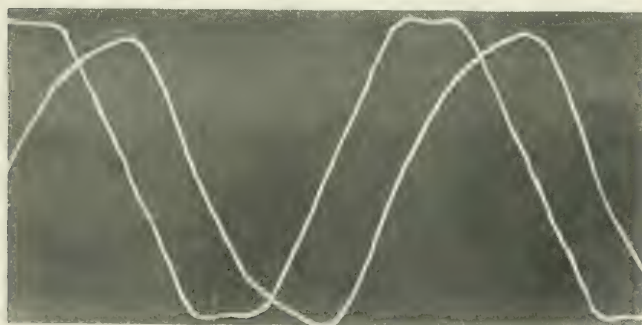
OSCILLOGRAPHIC CURVES



The Current Lagging



The Current in Phase



The Current Leading

eration of the positions of E_g on each side of R will show that at R , P'' passes from positive to negative values, that is, from generator action to motor action.

By changing the value of E_m , leaving E_g and the constants of the circuit the same, the effect of variation of the e.m.f. of the motor may be observed. It is seen that increasing E_m reduces the range of motor action whereas decreasing E_m increases the range.

In Figure V it will be observed that the current is leading E_g . Whenever the current which circulates between the motor and generator is ahead of the generator voltage, the generator is delivering the leading current. The cause of this leading current is the value of the motor e.m.f. E_m . In varying E_m to determine the range of motor operation, the position of I will change with respect to E_g sometimes leading and sometimes lagging. In general, it will be found that values of E_m greater than E_g will produce leading current. Between what may be called over excitation, causing a leading current, and under excitation, causing a lagging current, there is an excitation which may be called normal. At this excitation the current neither leads nor lags, but is in phase with the voltage of the generator.

The three accompanying oscillographic curves show very convincingly what happens when the excitation of the motor is varied. The current shifts from a lagging position to a leading one as the excitation is increased. These curves were taken upon a three phase delta connected motor having a constant light load and being driven by a generator of the same design and connections as the motor.

These curves were not calibrated and hence they do not show the variation in the value of the current with the change of phasal relationship of current and voltage. But if the load remained the same during the taking of the three curves, it is evident that the current must have changed in value, being larger when leading and lagging than when in phase with the voltage. This is made clear by an observation of the equation of power output of the generator, $P' = E_g I \cos a$ and also in the diagrams of Figure VI. P' and E_g are constant, hence $I \cos a$ is a constant and I will be minimum when $\cos a$ is maximum, that is, when I and E_g are in phase.

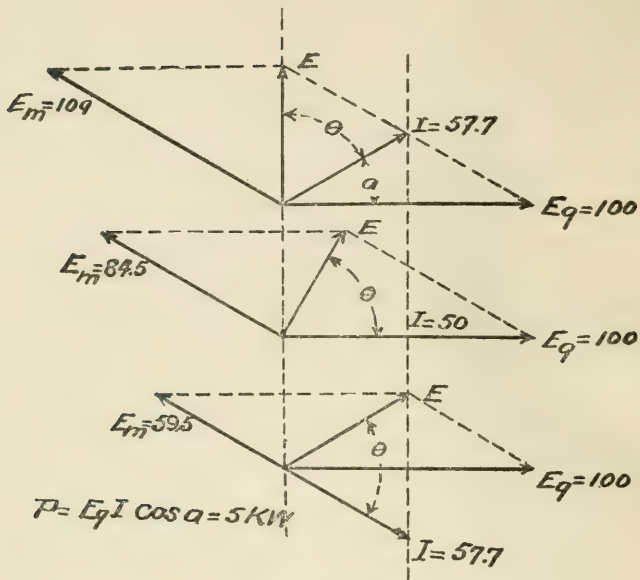


Fig. VII.

It is seen that over excitation of a synchronous motor tends to make the current drawn from a generator lead the voltage. In other words, the motor acts like a condenser. If a lagging current is drawn by the induction motor and the rotary condenser takes a leading current of the same value, the effect is the same as if the generator is relieved entirely of the out-of-phase currents and is required to furnish the in-phase or power current only. This may be expressed somewhat differently. The rotary condenser furnishes the excitation of the induction motors and the generator furnishes the electrical energy that is converted into mechanical energy. The excitation in excess of the amount required by the condenser is transferred to the magnetic circuits of the inductive load. On the other hand, if the synchronous motor is under excited, it requires some excitation from the generator and in consequence draws a lagging current to supply the deficiency.

Let us see how the principles of the rotary condenser may be applied in a concrete example. Suppose (Figure VII) that the output current of the plant is 100 amperes and the power factor is 80%. It is evident that the plant is furnishing 60 amperes of exciting current and 80 amperes of power current. Let a rotary condenser be installed and let it be excited so as to take a leading current of 60

amperes. A preliminary test should be made to see what current it takes to run the rotary condenser light and at unity power factor. This is done as indicated above by varying the field current of the

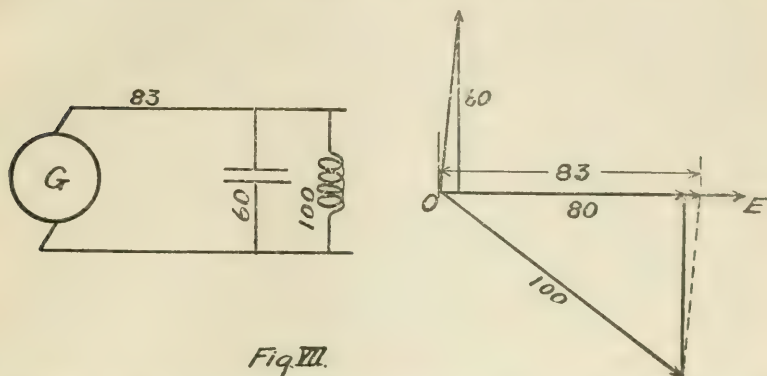


Fig. VII.

motor till the line current is a minimum. Let us suppose that this current is 3 amperes. It will now be seen that if the current intake to the rotary condenser is adjusted by means of over excitation of the field to a value of $\sqrt{3^2+60^2} = 60$ amperes approximately, the current taken from the generator will be 83 amperes, a current in phase with the voltage, there being no out-of-phase current. The power factor will be unity, the generator being relieved of all exciting current.

It is not, however, desirable to make the power factor of the generator unity. It is generally better to strive for only an approximation to unity power factor. To illustrate this, suppose that

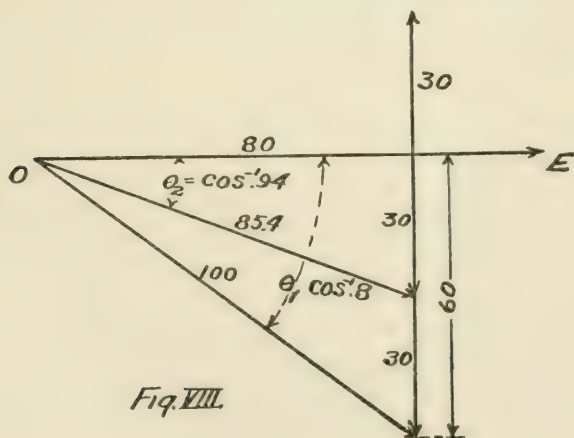


Fig. VIII.

the condenser had been adjusted so as to take 30 amperes of leading current. In this calculation we shall neglect the small running light current of the condenser.

The power factor would be improved from 80% to 94%, an improvement of 14%. As seen above, it takes 60 amperes of condenser current to make available the 20 amperes of idle generator capacity. It hardly seems economical to try to recover the 6 amperes still unavailable when the rotary condenser is operating at 30 amperes. A small motor of approximately 30 amperes rating would probably be the best solution of the power factor problem.

It is possible to load the rotary condenser and make it serve a double purpose, as a condenser and as a source of motive power. If this can be done, a little consideration will lead to the conclusion that the current capacity of a motor used for these two purposes will give the greatest current service when the power component of the intake is equal to the leading component. In other words, if 30 amperes of leading current (Figure IX) are needed, and the motor

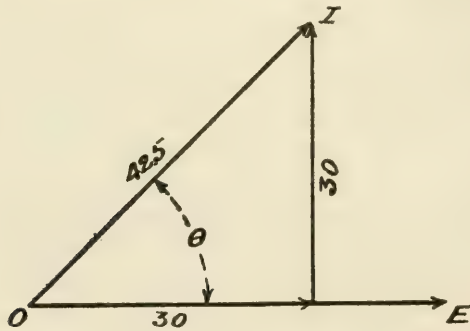


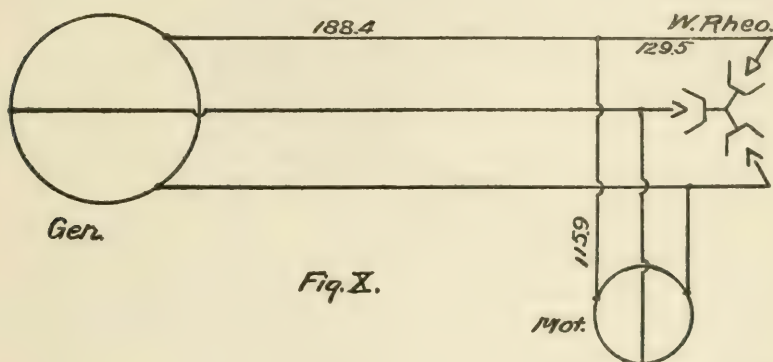
Fig IX.

can be loaded, the proper load current, including running light current, is 30 amperes. And a motor of 42.5 amperes capacity should be installed. By this arrangement 60 amperes are available for service which is the maximum that can be drawn from a 42.5 ampere machine.

Where should the rotary condenser be installed? If it is feasible, the ideal place is at the center of gravity of the inductive motor load. By installing the rotary condenser at this point not only the generators, but the transmission line and switch board apparatus are relieved of the idle magnetizing current. It is not al-

ways possible or feasible to locate the condenser here. It is frequently placed in the power house along with the generators where the regular station operating force may give it the expert attention which it requires.

Just as in power service the synchronous motor has been used as a rotary condenser correcting certain undesirable conditions, so also has it been used to produce poor power factor in alternators which are to be tested under this condition. Suppose that it is desired to make a heat test of a three-phase alternator of 750 K.V.A. capacity at 2300 volts at 80% power factor. Suppose that there are three water rheostats that may be used for loading the generator and that a synchronous motor having a unity power factor and a running light current of 21.5 amperes per phase, is available. Let the apparatus be connected up as indicated in Figures X and XI.

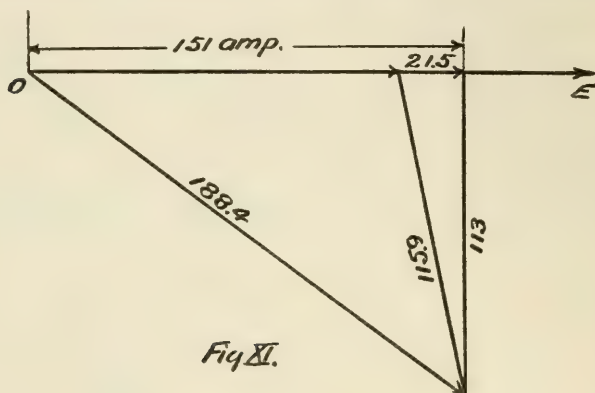


Let us see how the currents in the various parts of the circuit will need to be adjusted so that the generator will operate at 80% power factor. The current per line from the alternator is 188.4. At 80% power factor the power current will be 151 amperes. Since the running light current of the motor is 21.5 amperes, the load current to the water rheostats will be $151 - 21.5$ or 129.5 amperes. The out-of-phase current to the motor will be 113 amperes. $\sqrt{(113)^2 + (21.5)^2} = 115.9$, the current that will need to be taken by the motor in order that the power factor of the generator may be 80%. These adjustments are easily made by loading the water rheostats to proper current values and under exciting the motor till it takes the calculated current, 115.9.

In this case the synchronous motor is not ordinarily used as a condenser, for a lagging current in the generator is what is desired.

This, of course, means under excitation so that the generator will be called upon to furnish magnetizing current to supplement the motor's field excitation. The general principles of adjustment are, however, the same whether the motor makes a current in the generator lag or lead. The synchronous motor used as a rotary condenser has found very considerable use in the heat test of alternators.

Large alternators are rarely actually loaded in order to determine whether they will come within the temperature guarantee. Several compromise schemes have been devised. Among them is one



involving the running of the alternator as a synchronous motor with its field over excited to give normal full load current at normal voltage. In a synchronous motor, leading current opposes the field excitation and a lagging current aids the field excitation. So in drawing a leading current in order to maintain the voltage, the field excitation has to be increased to a value above normal. This causes the heating of the field to be greater than it should be. Two remedies have been proposed for this, first, the applying of a correction factor to field temperatures or, second, the running of the alternator intermittently with leading and with lagging normal current, the durations of the intervals being determined by comparative tests made upon the same machine actually loaded.

There is one thing further that may be said in behalf of the rotary condenser which is perhaps of some importance. It has a tendency to balance the voltages of the phases of an alternator which is carrying an unbalanced load. The magnitude of the leading current depends upon the relative values of the voltage of the generator and the motor. Since the value of the e.m.f. of the phase of the alternator which is lowest and the corresponding phase of the rotary

condenser are farthest apart, a greater leading current will be taken by that phase and this increased current will raise the voltage of this phase thereby tending to establish a balance of voltage in all of the phases. This balancing effect is of more importance than is generally thought.

The synchronous motor is not so simple as the induction motor, it requires more accessories and more expert attendance. But it is the most practical solution of some of the problems connected with testing and with central station economy. Recent developments in induction and other alternating current motors have tended toward good power factor. But the time seems not to have come yet when some external corrective for poor power factor in electric power systems is not needed; and, thus far, the synchronous motor as rotary condenser seems to be the solver of the problem.

Book Reviews

ESSENTIALS OF PHYSICS FOR COLLEGE STUDENTS: DANIEL W. HERING, Dean of the Faculty of the Graduate School and Professor of Physics, New York University. (166 Illustrations.) D. Van Nostrand Company, New York, 1912. IX + 353 pp. Price, \$1.75 *net*.

The author states in his preface that "the considerable class of students preparing to fill the position of educated men and women . . . should have an opportunity to become acquainted with the principles of physics in more than an elementary form, yet without the fullness of detail and the more difficult mathematical demonstrations that would be required by an engineer." It is apparently to this class, "not specialists in science," that he makes his appeal.

The book is written from an exceedingly mature and somewhat philosophical point of view, and contains far more mathematical matter than might be expected in a book intended for the "not specialists in science." On the other hand, it ought to be particularly valuable to teachers and to mature persons who have had some interest and training in other sciences than physics. The inclusion of many of the simpler lecture room experiments, the copious citations of original sources and references, and the quotation of many passages of historical as well as of scientific interest give the book a unique value. The paragraph on "Why study physics?" is a concrete example of the happy way the author has of bringing the subject into contact with modern life.

The somewhat useless distinction made on page 16 between *mass* and *inertia*, and the complete omission of the dynamics of rotation are not in harmony with a generally practical point of view. It is also inconsistent to omit the derivation of lens formulae and various electrical formulae based on the law of LaPlace (or of Biot or Savar), and yet insert considerable mathematical matter in the chapter on *Potential*, which is certainly a sufficiently abstruse topic even for rather advanced students.

To a few minor matters exception might also be taken. The criterion of a wave motion (page 149) might better be taken as *interference* than *periodicity*. The distinction between *noise* and *sound* (page 166) is illogical, since all noises are sounds altho all sounds are not noises. Later on the author emphasizes this very point.

On page 171 some account of the origin of the peculiar intervals in the natural musical scale ought to be given, as for instance, the explanation of how the scale may be built up from notes the ratio of whose pitches are expressed by very simple numbers. On page 235 conductivity is stated to be the same as conductance, which is true for steady currents only. One might also wish that for simplicity Ohm's Law were so stated that it would hold for variable as well as for steady currents. The explanation of the action of the coherers (page 280) is plausible, but in view of recent investigations hardly probable. It would indeed be more up to date to leave out the relay and coherer and substitute the telephone and crystal (or some other type) detector, as is actually done in a large percentage of our commercial stations for wireless telegraphy. Most of these points are minor matters and perhaps largely matters of opinion. On the whole, the critical reader is most impressed with the fact that so much good material is presented in such attractive form within a sufficiently small number of pages (360) to make a satisfactory text-book.

A. H. TAYLOR

Department of Physics,
University of North Dakota

THE MATHEMATICAL THEORY OF HEAT CONDUCTION: L. R. INGERSOLL, Associate Professor of Physics, and O. J. ZOBEL. Formerly Fellow in Physics, University of Wisconsin. Ginn and Company, Boston, New York and Chicago. V + 171 pp. Price, \$1.60.

In the preface of this book the authors acknowledge their indebtedness to a series of authorities dating back to Fourier (1811) from whose writings they have drawn their material, elaborated it, and at the same time have added material of their own. This material gathered from scattered writings would in itself warrant the publication of such a book as the authors have given us.

The field (the solution of problems in heat conduction) covered by this book is one of growing importance, not only from the theoretical point of view but from the technical side as well. Such problems as the penetration of heat into concrete, and the theory underlying fire-proof walls, are of extreme importance to the underwriter. The freezing of concrete is another problem and one which interests the contractor, and the effect of radio-activity on earth tem-

perature while not so obviously important as many other problems outlined in the book is one interesting and suggestive to the scientist.

The whole subject as outlined in the book is one which has been to a large extent neglected, and one which at the present time has very little data to its credit. This is due to several reasons. First, it is very difficult to obtain accurate data; secondly, the theory has not been developed to fit the variety of experimental conditions which are met with, and lastly, the problem of conductivity is intimately associated with a number of physical phenomena which complicate the situation immensely.

The subject has within the last few years received a new impetus due perhaps to the improvement of heat and temperature measuring devices, and the more general interest in subjects closely associated and allied with it. The authors have met the timely opportunity for putting forth this book which so admirably adapts itself to the situation.

After the first chapter, which is historical and outlines the nomenclature used in the text, the Fourier equation is developed. It is applied to several one-dimensional problems and also to problems of more than one dimension where the boundary conditions are known and the distribution of heat has become steady. The conduction of heat along a thin rod, thru a thin plate, and the radial flow of heat in a sphere, are examples of the general problems treated. There are a number of interesting technical applications treated, testing the conclusions of the more general problems.

The problem of the periodic flow of heat is next taken up, but before proceeding far into the problem it is necessary to develop the Fourier series and Fourier integrals which one finds carefully done in chapter VI. Problems are developed then with specific boundary conditions for a linear flow of heat and a flow of heat in more than one direction. Such problems as the infinite solid, the semi-infinite solid, radial flow, and a sphere cooled by radiation are illustrations of the general problems considered. The general solutions obtained are applied to a number of most interesting technical and scientific problems. In this particular as well as in the additions to the general theory the book is unique.

The technic displayed in handling the material and disposing of it in the text is worthy of commendation. There are very few authors' or publishers' errors in the text or in the mathematical analysis. The book, on the whole, while the only one of its kind, is one very well worth while. It is hardly a technical man's book, yet a

technical man with a fair mathematical knowledge would find the book useful. For collegiate purposes it satisfies a need. It puts the subject up to date and in such a shape that it is available without the consultation of authorities a century old.

B. J. SPENCE

Department of Physics,
University of North Dakota

THICK-LENS OPTICS: ARTHUR LATHAM BAKER, Manual Training High School, Brooklyn, N. Y. An elementary treatise for the student and amateur. D. Van Nostrand Co. 1912. ix + 131 pp. Price \$1.50 *net*.

The title "Thick-Lens Optics" seems rather broad for a book that limits its investigations to a single monochromatic ray, does not touch upon the subjects of spherical and chromatic aberration, and involves no more mathematics than the "simplest kind of algebra, two theorems in elementary geometry and one in trigonometry," but the attempt of the author to answer certain questions "in a manner so plain and simple that the average amateur can find out for himself what is going on optically in his camera, microscope or telescope," is well worth while. Any rigorous study of the subject of thick-lens optics so quickly plunges the worker into a maze of complicated physical theory and involved mathematical equations, there are so many conventions in regard to signs, the necessary approximations in the derivations of formulae are so easily missed and the technical and commercial terms are so frequently inaccurately, if not incorrectly, used, that an attempt to master the subject from the study of the literature or available texts presents considerable difficulty, therefore a consistent study even under the limited conditions prescribed by the author is to be welcomed.

Since the author planned the book "as a working manual and not a treatise," altho the subtitle calls it a treatise, nearly all explanations as to *why* things work as they do or why certain combinations of lenses, for example, should be used are eliminated, but one wishes that at least an occasional paragraph had been devoted to this purpose. The definition of the index of refraction as the ratio of the sines of the angles of incidence and refraction and the corresponding trigonometric proof of the simple lens formula is in common use in many text books, but from the reviewer's experience the definition of the index of refraction as the ratio of the velocities of the light in

the two media and the continuation of this same idea in the derivation of formulas by the so-called "sagitta" method (cf. Duff's Physics, pp. 360 and 377) makes the work more real, has more obvious reasons for the algebraic manipulation of the quantities involved, and shows more clearly the approximations and the limit of accuracy of the final formula.

A brief outline of the book shows chapters devoted to surface refraction, thin lenses, thick lenses, combinations of lenses, telephoto lenses, reflection at spherical surfaces and experimental observations with an appendix on methods of construction and interpretation. Thruout the book the graphical method is emphasized by way of illustration and as a check on the calculations and interpretations, and this feature is to be heartily commended. Each chapter has a number of practical problems, a few illustrative ones being worked out and frequent cross-references being given for the others. The fact that the formulae give exact results only for special conditions is emphasized by frequent notes and cautions.

The typographical work of the book is excellent the print being large and clear and the illustrations diagramatic, well chosen and fully lettered.

EDWARD BEATTIE STEPHENSON

Department of Physics,
University of North Dakota

THE PRINCIPLES OF SCIENTIFIC MANAGEMENT: FREDERICK WINSLOW TAYLOR, Past President of the American Society of Mechanical Engineers. Harper and Brothers, Publishers, New York and London, 1913. 144 pp. Price, \$1.50 net.

This work is the result of thirty years of experimentation and study in the problems of the efficient management of manufacturing plants, and was prompted by the great daily wastes of human effort thru blundering and ill-directed acts so often visible in wasted or damaged raw material and inferior product. The fundamental excuse for management is the maximum prosperity of employe and employer. The employe's maximum prosperity consists in his giving out all there is in him, and that of the employer in the maximum production of his commodity. Thus the fundamental interests of the employe and employer are identical and in no manner antagonistic. The greatest permanent prosperity of the employe and employer is effected when a plant is operated to its full capacity with the least

expenditure of human effort and of capital. The "soldiering" employe is a loss to his employer by cutting down the factory out-put and a loss to himself by helping to perpetuate a low wage.

The author analyzes three causes for the common tendency on the part of the employe to put into his work less than his maximum mental and muscular effort. First, the common belief that if he works at his maximum speed he will help to throw a large number of his fellows out of employment. Second, owing to the ignorance of the employers as to the proper time interval in which a task should be completed, the employe is governed by the tendency natural in all men to pursue the easiest course of action, and, Third, under the unscientific or rule-of-thumb type of management which compels the employe to discover how to perform his task by the trial and error method, very diverse and more or less haphazard methods of working are permitted to become habitual resulting in a permanent retardation of his efficiency. Scientific management proposes scientifically to select, train, and teach each workman, to cooperate with him, and to divide responsibility with him, and to develop a science for each element of his work. The keynote of scientific management is a definite task to do, a definite plan for doing it, and a definite time to do it in. This task idea of work imposes additional care upon the management for it is necessary to maintain an experimenting and an instructing force whose duties are respectively to determine the amount and quality of work of a given kind a good workman should be able to turn out in a given time, and to direct him and to help him to make the best of himself as an employe.

Dr. Taylor first applied his principles of scientific management to the handling of pig iron in the plant of the Bethlehem Steel Company. He increased the speed of pig iron loading from $12\frac{1}{2}$ to 47 long tons per man per day, enabling the men to earn seventy cents more per day and the company to move more than three times as much pig iron per day as they had been moving. With equally notable results he organized other concerns on a scientific basis. By employing scientific principles, a ball-bearing factory was enabled to do as much work with thirty-five girls as it had been doing with one hundred and twenty girls, with an increase in accuracy of 67 per cent.

To summarize, the reviewer is impressed with the following strong teachings of the book, and sees their possible application in all undertakings where it is necessary for one man or a group of men to supervise other men at work for a daily wage. First, study the individual man: determine his personal coefficient. It will then be

possible to determine whether he is putting his best effort into his work. Study his movements, and allow him to habitualize only the most efficient. Second, avoid indefinite assignments by determining what constitutes a proper day's work. Third, establish a differential rate piece work daily wage whereby the pay is increased in proportion to the quantity and quality of the work done. Fourth, make a minute study of the implements to be used to determine their most efficient speed. Fifth, provide functional foremen to teach the men their work and to help them release the best power in them.

Altogether the book is suggestive and stimulating, impressing one with the fact that it has come from the pen of a man who has worked with men and trained them into efficiency. The author offers no untried opinions but accounts for every principle by reference to empirical facts.

JOHN W. TODD

Department of Philosophy,
University of North Dakota

SAFETY: WILLIAM H. TOLMAN, Director of the American Museum of Safety, and LEONARD B. KENDALL. Harper and Brothers, New York, 1913. XII + 422 pp. Price, \$3.00 *net*.

During the last few years there has been a wonderful awakening of the public mind to the great waste of industry and to the importance of reducing the number of accidents and occupational diseases. With this awakening and the activity of many of the heads of industrial establishments, has come a great change in the attitude of capital toward labor. The soulless corporation has been endowed with spirit and the workman is no longer a tool to be cast aside when not usable. Certain phases of this new trend have been widely heralded in connection with the efficiency systems, but the authors of "Safety" have prepared a comprehensive handbook dealing with welfare work among the laborers, the causes of accidents and the great reduction in their number when proper safeguards are used, many of which are illustrated and described.

The purpose of the book is to "place broadly before the public the whole subject as illustrated in the experiences and needs of representative industries," for "one of the most important phases of our future development is the work of creating an inexpensive, efficient hand-rail at the top of our industrial precipice to take the place of the unreliable and expensive ambulance at the bottom."

The book is divided into four parts: General Conditions, Danger Zones, Industrial Hygiene and Social Welfare, closing with a chapter on the American Museum of Safety in New York. The connection of one of the authors with this museum has enabled him to speak with authority and to draw upon the best of Europe and America to show what wonderful results can be achieved. The topics are well chosen, altho at times the authors go too much into detail. It should not be the purpose of such a volume to be a catalog of safety devices, but rather to stimulate and create an interest. The detailed suggestions should come thru the publications of the museums of safety which are ever ready to cooperate to the fullest extent.

The value of "safety" to the employer is shown both from the humanitarian and dollars and cents standpoints, to the employee in a reduction of his time lost due to accidents, and to the community in a decreased drain to support those who, thru accidents, have become consumers instead of producers. Specific examples are given of the value of proper illumination, sanitation, recreation and surroundings of the workmen to promote efficiency and reduce the waste of material.

The great advances in recent years in industry and commerce and the movement toward the large cities have increased many fold the dangers, and thru familiarity with them caution and care are too often neglected. As accident prevention is a matter of education, emphasis is placed upon the importance of teaching the children to think and act along lines of safety and caution on the streets and in their homes. A number of European countries and some of our own states have taken up this instruction in the schools with the result that accidents to children have been greatly reduced.

The book is well written, clear, and interesting, and should be read by everyone, for there are numerous references to the preventable accidents in which the general public is involved, such as street car and railroad accidents, accidents at street crossings, on stairways and at theaters, concert halls and schools. It is an appeal to spread the gospel of "Safety First," safety in the shop, the street and the home, and safety from accidents and disease, and it should meet with a hearty response.

A. J. BECKER

College of Mechanical and Electrical Engineering,
University of North Dakota

THE MAKING OF A TOWN: FRANK L. McVEY, President of the University of North Dakota. A. C. McClurg Company, Chicago, 1913. 221 pp. Price, \$1.00.

This is a timely book. It is offered just when the city planning movement is in danger of being imitated in shallow fashion by the smaller town. Not all city plans that have been made public in the last ten years have presented an adequate picture or program of real community needs and remedies. They have been largely beautification proposals and as such have been valuable. For the small town to follow slavishly the example thus set might easily lead it astray and away from the serious consideration of its own local problems.

President McVey's book, however, in no sense belittles the esthetic factor in town development; rather it puts it in its proper place among other factors. Before beauty he would have health, education and moral considerations weighed because they are fundamentals.

"The Making of a Town" is in a very real sense a handbook. It is easy reading, the print is good, the size permits a man to slide it into his pocket without trouble, it is packed full of information, suggestion and inspiration and it has a good index. The matter in it is a fine mixture of fact, superior common sense and idealism. Could every small town public official the country over be made to read the book during the next six months one would expect to hear of a tremendous municipal "clean-up" around these United States in another year.

The author evidently did not intend to write an exhaustive treatise on the eleven topics discussed in as many chapters, viz.: Town Building and Co-operation, The Planning of The Town, The Three Fundamentals, Health, Schools, Morals and Business, The Entrance to The Town, Government and Administration, Organizations and What They Can do for the Town, Advertising the Town, and the Future of the Town, but rather he aimed to present an attractive composite snap-shot of the town requirements, of a town that desires to be called complete. One can finish the book in a few hours and upon finishing it one feels that one has gone thru much, has absorbed many new ideas and begotten an itch to get along to some small town and aid in working out its salvation along the high lines indicated. The good bibliography appended to the book will help the many readers who will be tempted to study more deeply the various topics treated to the authoritative sources of information.

The very noticeable and gratifying feature of the book is its emphasis upon the social aspect of the different elements of community life. To one who knows of President McVey's own activities along distinctive social betterment lines, and how he has in many different movements helped to achieve fine community results thru the bringing together of men and women in team play, it is not at all strange to read sentiments like these: "The town is a social organism," "a community of common interests," "by the bringing together of the co-operative forces of the community the people of the town may be made a great deal happier, a great deal better, and a great deal wiser," "town building today means community co-operation as never before and the study of the problem from the point of view of the future."

Common sense precepts are laid down thruout the book. Some of them would run this wise if tersely put and taken out of their context relations: "Know thyself, O, Community; then quit bungling experiments; find out what experience has taught other communities and ask an expert, fight the rank self-seekers of the town, whether in public office, in business or in the church; give the best human tendencies a chance to flourish by creating right health, school and moral conditions; make everything within your border so fine and wholesome and prosperous that you will not even be tempted to lie in your advertising of the town."

EUGENE T. LIES

United Charities of Chicago

THE SOCIAL EVIL: EDWIN R. A. SELIGMAN, McVicker Professor of Political Economy, Columbia University, Editor. Second Edition, Revised, with New Material. G. P. Putnam's Sons, New York and London, 1912. XVII + 303 pp. Price, \$1.75 *net*.

A recent Johnstown, Pennsylvania, paper contained an article directed against the Chicago plan of instructing school children in the principles of sexual hygiene, indicating that it is a symptom of the present intense and voluminous mania to write and publish matter relative to sex questions. The volume under review would doubtless illustrate the writer's view and be condemned by him as a heinous crime against the virtues of ignorance and innocence. But with other kindred works it seeks to convey essential information about the social evil, which in many respects is society's gravest problem.

Since the Committee of Fifteen issued its report in 1902, eight of the members had died prior to the issuing this second edition. Since the publishers desired a new edition, after consulting the remaining members of the committee the well known economist, Professor Seligman, undertook the task of revising the report. Instead of undertaking to rewrite the report, which would have destroyed it as the report of the Fifteen, the editor sensibly added a new Part to the original two Parts, calling it "A Decade's Development, 1902-1912."

The original report embraced Part I, on The Social Evil, and Part II, consisting of the recommendations of the committee. Part I consisted of eleven chapters, stating the problem and giving the history of the regulation of prostitution in ancient and modern times, and discussing the comparative values of sanitary and moral control of prostitution. Prostitution is a relatively modern institution, probably appearing during some of the three stages of barbarism. But during so recent a period as the "Middle Ages" certain cities as corporate bodies maintained prostitution as a necessary institution for the protection of public morals. However evil that position appears to us now, it is not much worse than that of replementation, or regulation, wherein certain cities as corporations view prostitution as a necessary evil and enter into partnership with it in giving it a legal status in order to regulate it. The report shows the general failure of the method of regulation and proposes a plan of moral control in which sanitary regulation of prostitution as a transitional expedient, education of children and the public as to the dangers and evils of sexual license, and ultimately prohibition because the social evil is not only a menace but inherently morally bad, find their places.

Professor Seligman, in Part III, reviews the advances made in Europe and the United States relative to the attitude toward prostitution and organized effort aiming to combat it. He notes the passage of the regulation act by the British Parliament in 1863 to apply to certain military and naval stations, and which was eventually widened to apply to Canada, British India, the Australian Colonies and to some other cities. Harriet Martineau and John Stuart Mill headed a propaganda which finally educated the public mind relative to the evils of the measure and it was repealed in 1885. He also notes the formation of European and American Societies to cultivate an anti-prostitution sentiment and the enlistment in the cause of a growing number of medical men. It is remarkable that because of the general failure of regulation to regulate, as well as on scientific

and ethical grounds, the medical fraternity is coming to stand for outright prohibition. Attention is given to the White Slave traffic and to the Vice Commission reports of Chicago and Minneapolis. The volume contains much valuable statistical, historical and scientific information bearing on the social evil and is probably the best single volume for English speaking people on the subject. A full bibliography and index add to its value.

JOHN M. GILLETTE

Department of Sociology,
University of North Dakota

THE CAMBRIDGE MANUALS OF SCIENCE AND LITERATURE: P. GILES and A. C. SEWARD, Editors. The University Press, Cambridge, England, and G. P. Putnam's Sons, New York, 1913. Price 40c, each, *net*, in cloth; \$1.00 each, *net*, in leather.

This is an exceptionally interesting set of little books dealing with really large subjects. Seventy volumes are now ready many of which bear the 1913 imprint. The names of ten written between November, 1912, and January, 1913, are fair samples of all:

Ancient Babylonia	Comparative Religion
The Earth	The Story of a Loaf of Bread
The Atmosphere	Ancient Stained and Painted
The Icelandic Sagas	Glass
The Physical Basis of Music	The Vikings
The Modern Warship	

The books are uniform in size, in binding and in general make-up. They average about 145 pages, $3\frac{1}{4}$ by 5 inches of printed matter, and are well illustrated where illustrations add to either clearness or interest. Each is provided with a carefully worked out index and, in nearly every instance, with a reliable bibliography. They are very attractive in appearance being neatly and substantially bound in cloth and in leather. They are well printed in large clear type on a good quality of paper. The general appearance is made even more interesting by the design on title page and first cover page, it being, "with the exception of the coat of arms at the foot," "a reproduction of one used by the earliest known Cambridge printer, John Siberch, 1521."

Each book is written by an eminent English scholar, a recognized authority in the line treated. Tho written somewhat from the English point of view, no intelligent American reader need be at all mis-

lead by that fact. A few brief quotations from some of the prefaces will give both the point of view from which they are written and the general method of handling the subjects being treated:

From the preface of "The Physical Basis of Music" I quote the following: "In the treatment of the subject with which this manual deals very little previous knowledge has been assumed and the author hopes that he has been successful in bringing within the scope of every earnest reader some grasp of the principles. At the same time the subject is no easy one, and the book is not for an idle half-hour."

From the preface of "The Earth" this sentence is suggestive: "The aim of this book is to explain in a general way, without mathematical detail, how the shape and size of the earth have been determined, how its mass has been measured, and how we know that it rotates, and so uniformly that it is a nearly perfect time-keeper."

And this from "Ancient Stained and Painted Glass" leaves one in no sort of doubt as to what will be found: "These pages make no pretence to give an exhaustive account of their subject, but only to supply sufficient data to ground an intelligent appreciation of such remains of stained and painted glass older than 1700 as are still to be found in ancient buildings."

This next, from "The Modern Warship," likewise makes clear the general character of the work and, as well, its manner of treatment: "It is hoped that the brief account of the modern warship contained in the following pages, written from the naval architect's point of view, may be found of interest to the general reader who desires to obtain some acquaintance with the subject.

"Limitations of space have prevented reference being made to many points of interest in connection with warship design and construction, and anything of a controversial nature has been avoided. Also no reference has been made to contemporary warships of other countries."

The books are, then, it is seen, semi-popular and semi-scientific. They are popular in that the treatment is divested of all unnecessary technical terms and expressions and does not go into the close detail of the technical treatise. They are scientific in the general method of treatment and in that they can be relied upon as statements of scientific facts. While the strictly technical terms and the minute analyses of the laboratory are, so far as possible for accurate statements, lacking, the authors have not gone to the extreme of an attempted sugar-coating and "written down" as to children. In a word, the manuals are written for thoughtful, intelligent people who,

while not, at the same time, scientists, historians, literary artists and art critics, are nevertheless interested in and desire to form an intelligent acquaintance with the great fields of thought and human endeavor outside their own special lines. It is difficult to see how the work could have been better done. And in thus placing before the reading public, in such digestible form, the pith and marrow of history and literature and science and art, the publishers have performed a real service.

A. J. LADD

Department of Education,
University of North Dakota

University Notes

Dean Kennedy's Return Professor Joseph Kennedy, Dean of the School of Education, after twenty years of continuous service in the University of North Dakota, was granted for last year a leave of absence. Professor Kennedy's work all these years had been in the teaching of philosophy and education and in directing the work of the Normal Department of the University and that into which that department later developed, the School of Education. The year was spent in a manner very characteristic of the man and in close line with the work he had been doing so long. It was not exactly a year of rest, except so far as a change of work is restful, rather one of somewhat strenuous activity yet of a nature to be thoroely enjoyed by one so well fitted for it.

He spent practically the entire year in the study of educational conditions, mainly in the East. During the first semester his headquarters were at Columbia University and during the second at Harvard. These institutions he studied somewhat carefully, visiting classes, listening to lectures, making the acquaintance of prominent educators, discussing matters of educational administration, interviewing students, noting equipment, and in many other ways trying to get the institution's point of view and method of procedure. From these centers he visited several other institutions keenly alive at all times to all he saw and heard. In one and all he was most courteously received and readily given every opportunity for accomplishing his purpose. He returns to take up again his duties in the home institution feeling educationally invigorated and in every way well repaid for his year thus spent. His experience can not fail to be of great value to his colleagues and to the institution as a whole.

Dean Crouch's Leave of Absence Professor Calvin H. Couch, Dean of the College of Mechanical and Electrical Engineering, has been connected with the University of North Dakota for a period of thirteen years, coming to the institution in the fall of 1900. In the spring of that year the Trustees decided to establish a College of Mechanical and Electrical Engineering, and a man was sought to act as its head, to map out its work. Dr. Webster Merrifield, then President of the University, visited various institutions studying the work of such colleges and searching for the right kind of a man for Dean.

Being well pleased with the situation at Cornell University, he asked those in charge to recommend some former student with the Cornell point of view, one well grounded theoretically and who had been successful in some form of practical engineering since graduation. Calvin H. Couch, a graduate in the class of 1892, who had spent the time since in just that form of work, mainly in Philadelphia, was named. He was engaged and soon entered upon the new work. The College of Mechanical and Electrical Engineering in the University of North Dakota is practically the product of his brain and tireless energy. He has well earned the leave of absence that the Trustees have granted him.

Dean Couch is at present with the Allis Chalmers Company of Milwaukee, Wisconsin, a firm engaged in the manufacture of all kinds of engineering equipment, including steam, gas and oil engines. He is on the engineering staff of the Power Department, and is thus thrown into contact with eminent engineers, who are daily facing all kinds of practical engineering problems. Aside from this his plans include the study of conditions in engineering colleges, and the observation of notable engineering enterprises. All of these activities will bring him into close touch with existing conditions in the world of the engineer and give him added fitness for directing the work of his growing college in the home institution. In his absence, Professor Albert J. Becker, who has been closely associated with Dean Couch in the work of the college for nine of its thirteen years, will serve as Acting Dean.

Biological Station, Summer of 1913 During the past summer the work of the Biological Station centralized about the following points: First, studies of the physics, chemistry and biology of Devils Lake water; Second, similar studies of the water of some other states; Third, some studies of land animals and plants; fourth, continued co-operation with the United States Biological Survey, and fifth, Summer School in biology at the Station.

Both technical and practical activities of the Station were advanced satisfactorily. About 20,000 steel head trout were hatched and worked with in the 1913 experiments. It was found that these fish could be acclimatized very readily to Devils Lake water. Over 1,000 yellow perch were secured from the State Fish Commissioner, Captain R. W. Main, and acclimatized to Devils Lake water during August. They were in prime condition after processing, and were placed in different portions of the lake.

At the request of the Director of the Station Dr. Robert T. Young made a preliminary survey of the Missouri river during a six week's trip which extended from Mondak, on the Montana-North Dakota boundary, to Cannon Ball which is about 35 miles north of the North Dakota-South Dakota line. He was assisted by Mr. Lynn Radke.

Previous studies of the gaseous, mineral, physical and biological conditions of Devils Lake were continued with excellent results. Additional investigations undertaken were in the direction of determining the daily and weekly evaporation, by means of delicate atmometers; also of securing continual records of comparative temperatures of soil and air, and of water and air; and measurements of light values at different depths of Devils Lake.

The Station was visited by several thousand people during June, July and August. The Station register indicates that these visitors were from almost every state in the Union, and from several foreign countries. Their interest in the Station museum, prepared by Mr. Alfred Eastgate, and their appreciative attention to the experimental work shown were evidence that the Station work was educational as well as scientifically constructive.

The Station staff for the summer of 1913, in addition to the Director, Dr. Melvin A. Brannon, consisted of Dr. Robert T. Young, Mr. J. Marshall Brannon, Mr. Alfred Eastgate and Mr. W. Lynn Radke.

The Summer Session

The recent Summer Session of the University, closing on August first, proved to be all that was expected. In spite of the intense heat prevailing in many sections of the country, North Dakota's proverbially cool summer weather was clearly in evidence, there being but three days of the thirty during which the school was in session that were uncomfortably warm. The campus was at its best, there were but few outside distractions and all things seemed to unite in forming ideal conditions for earnest and profitable work. The attendance was a comfortable increase over that of last year and the character of the work of high grade. One feature of the attendance is worthy of mention inasmuch as it indicates that one of the leading functions of the Summer Session is coming to be appreciated and the opportunities offered used: there was a larger number than heretofore of teachers of the state who came in to complete their professional preparation and in other ways to equip themselves more adequately for their chosen work. Among

these were several principals and superintendents from the smaller towns of the state who seemed to spend here both a pleasant and a profitable vacation. This phase of summer school work will doubtless greatly increase as the years pass and teachers realize the excellent opportunities offered for doing advanced work under such favorable conditions.

Psychological Laboratory A notable advance along scientific lines was made at the University last year in the establishment of a psychological laboratory. This had been talked of and eagerly looked forward to for several years, especially by the workers in the departments of philosophy and education, but the funds had not before been available. About \$400.00 was expended in apparatus, not a large amount as some laboratories spend money but sufficient to procure all the necessary smaller articles that belong to a well equipt laboratory and, in addition, several good pieces of more ambitious character including excellent models of the ear, eye, nose, tongue and brain, a Bergstrom chronoscope and a Ludwig kymograph.

The laboratory was immediately put to use thru an elementary course offered in the second semester. The course proved to be very interesting, and the wisdom of the establishment of the laboratory is not questioned. A somewhat more advanced course, making application of psychological principles to educational practise, was offered in the Summer School. This, too, was greatly appreciated and by a relatively large class made up, for the most part, of teachers. Provision has been made for carrying on the work during both semesters of the coming year.

University and the Association of Law Schools Dean Robert L. Henry, Jr., and Hon. Harrison A. Bronson represented the University of North Dakota at the annual meeting of the Association of American Law Schools which was held in conjunction with the meeting of the American Bar Association in Montreal on September 1st to 3rd. Judge Bruce of the Supreme Court of the State, for many years Dean of our law school, was as usual present at this gathering of judges, lawyers, and law professors. He still serves as a member of the Board of Governors of the Bureau of Comparative Law. The meeting this year at Montreal was a most notable one. The guest of honor was Viscount Haldane, Lord High Chancellor of England. He delivered the annual address, bringing a message of friendship

from King George and the English people. A desire for a closer union among English speaking peoples was also expressed. It was an address full of depth of thought, scholarship, and vision and was most enthusiastically received by the twelve hundred American lawyers present, among them being nearly all the distinguished members of our bar. The man most popular among the lawyers present was ex-President W. H. Taft, who spoke a number of times, and was always introduced as Professor Taft of Yale University. His genial smile and merry chuckle on a countenance relieved from the cares of office captured his audiences. His address before the Bar Association was on the "Tenure of Judges" and the one before the Law School Association on the "Social Importance of Proper Standards for Admission to the Bar." He was elected President of the American Bar Association for the ensuing year. The Canadian hosts of the Association were headed by the Prime Minister of Canada, Robert Borden, and Thomas J. Doherty, the Attorney General of Canada and Minister of Justice, both of whom spoke at the meetings. The other distinguished guests present, were so numerous that only a couple of them can be mentioned. Among them were Chief Justice Edward White of the Supreme Court of the United States, who introduced Lord Haldane, and Maitre Labori, Batonnier de la Cour de France, the leader of the French Bar and well known as the defender of Dreyfus.

The University and the Natural Ice Association More than twenty years ago it was shown by bacteriologists that freezing does not necessarily kill all typhoid germs that may get into a block of ice and it was, therefore, concluded by many sanitarians that natural ice is not safe for use in drinking water or iced tea. The artificial ice dealers soon took advantage of this state of affairs and formed an association for the purpose of promoting the artificial ice business. Five years ago this association had almost driven natural ice from the market in our larger cities and at that time the dealers in natural ice banded themselves together in what is now known as the Natural Ice Association of America. Experience has taught us that the use of natural ice scarcely ever causes outbreaks of typhoid fever and this fact has led to a further study of the purity of natural ice. It was soon discovered that natural ice which is harvested from a reasonably clean source is perfectly safe from the bacteriological point of view, and from the chemical point of view almost as pure as distilled water. Altho freezing does not necessarily kill disease germs

one important fact had been overlooked, namely, that practically all germs and mineral impurities are excluded in the formation of ice under natural conditions and are left behind in the water beneath the ice. These facts the Natural Ice Association is endeavoring to bring to the notice of the people and, with this end in view, they have been inviting sanitary experts of note to address them on this subject at their annual conventions. At the last annual convention which was held in Chicago on September 18 and 19, Dr. G. F. Ruediger of the University was invited to give an address on "The Purity of Natural Ice From Polluted Waters." For several years Dr. Ruediger has made a study of this problem in North Dakota and he was, therefore, in a position to speak knowingly on this subject.

Another activity of the Natural Ice Association of America is to issue certificates of purity of their product to dealers in natural ice, whose methods of harvesting, handling and storing ice are acceptable to the sanitary expert of the association, Mr. John Sparks of New York City. No certificate is issued until the expert has made a personal inspection of the ice fields and the method of storage employed by the dealer applying for such a certificate, and analyses have shown the ice in question to be pure.

The University and the Health Association The American Public Health Association is the oldest organization in America which has for its aim the promotion of the public health. The association was organized nearly fifty years ago and has always had for its membership the leading public health workers in the United States, Canada, Mexico and Cuba. Altho its membership does not exceed one thousand it is noteworthy that practically all state health officers are members and take an active part in the annual meetings. At these meetings the association meets as a whole in four half-day sessions, at which time are presented papers of general interest to everybody who is engaged in public health work. The other half days are given over to meetings of the various sections. There are now five sections, as follows: laboratory, public health officials, vital statistics, engineering and sociological. At the meetings of the sections are presented papers of a more technical nature, which are of especial interest to the members of that section. The laboratory section has long been a recognized power in standardizing methods of analysis so that uniform methods may be employed in all board of health laboratories. Thus, their various committees on standard methods have published

methods for the bacteriological and chemical analysis of water, milk, air and sewage, and for the bacteriological analysis of oysters. Another committee of this section has standardized the manufacture and testing of antitoxins and vaccines. Other committees have worked out standard methods for the bacteriological diagnosis of diphtheria, tuberculosis and typhoid fever, and one committee has published a standard method for testing the bacteriological efficiency of disinfectants. These methods are recognized all over the continent and have been of inestimable value in bringing about uniformity in the work and creating order out of what was formerly chaos.

The last annual meeting of the Association was held at Colorado Springs on September 9 to 12 inclusive. The meeting was well attended and many valuable papers were presented. The University of North Dakota was represented by Dr. G. F. Ruediger, Director of the State Public Health Laboratories, and head of the department of bacteriology and hygiene. Dr. Ruediger and Mr. Robert Hulbert, also of the University, presented a paper before the laboratory section.

**Phi Beta Kappa
at the University**

The growth and development of the University of North Dakota has recently received recognition in the granting by the senate and national council of Phi Beta Kappa of a charter for the organization of a chapter. This body held its eleventh triennial meeting in New York on September 9th and 10th, and at that time took the action mentioned above, enrolling the University in this great academic brotherhood.

To those not familiar with the character and purpose of this organization it may be said that it is not to be confused with the ordinary Greek letter fraternity. It was organized on December 5, 1776, at the College of William and Mary, Williamsburg, Va. Its founder and first president was John Heath, and its membership carries the names of many of the most distinguished scholars of the United States. The society does not seek establishment in any college or university, but requires the highest standards on the part of institutions petitioning for admission. There are now seventy-seven chapters in the different educational institutions of the country, and the University is fortunate in having the high honor of establishing a chapter here.

In its membership the society eliminates "all fortuitous distinctions, such as race, color, creed or sex, and selects its members primarily on the basis of scholarship. It is essentially democratic, while constantly recognizing the aristocracy of intellectual acquirements.

It thus enjoys the proud distinction of being, among American educational institutions, the "chief conserver and rewarder of scholastic attainments."

The members of the chapters are elected primarily from the best scholars of the graduating classes of the institution, secondly from the graduates whose post graduate work entitles them to such honor, and lastly from persons distinguished in letters, science or education. It is understood that not more than one-fourth of each graduating class can be so selected for membership, and in addition to scholarship, good moral character is an essential qualification.

It was not until the society had reached its one hundredth anniversary, and held a firm position in American college life, that a central organization was effected. At that time a wise union of chapters resulted in the formation of the National Council of Phi Beta Kappa, which has since met every third year as the governing body of the united chapters.

During the past twenty-five years among the presidents of the organization may be found the names of Charles W. Eliot, president emeritus of Harvard University; Col. Thomas Wentworth Higginson of literary fame; Bishop H. C. Potter of New York, and President Edwin A. Grosvenor of Amherst College. Among its members have been Edward Everett Hale, Hamilton W. Mabie, President Nicholas Murray Butler, President Charles F. Thwing, President Mary E. Woolley, Oscar S. Straus, Dean E. A. Birge of the University of Wisconsin, Dr. George E. MacLean, and many other men and women distinguished in letters and public life.

The members of Phi Beta Kappa who are associated with the University of North Dakota are:

President Frank L. McVey, Eta of Ohio, 1893; Judge N. C. Young, president board of trustees, Alpha of Iowa, 1886; Mrs. N. C. Young, Alpha of Iowa, 1887; Dean Melvin A. Brannon, College of Liberal Arts, Beta of Illinois, 1912; Vernon P. Squires, Alpha of Rhode Island, 1889; George A. Abbott, Alpha of Indiana, 1895; William G. Bek, Alpha of Missouri, 1903; Charles E. Carpenter, Alpha of Kansas, 1903; Jessie Bennett Carpenter, Alpha of Kansas, 1904; Raymond R. Hitchcock, Alpha of Wisconsin, 1907; Arthur G. Leonard, Alpha of Maryland, 1898; Joseph L. Lewinsohn, Beta of Illinois, 1905; L. V. Parker, Minot, Alpha of Maine, 1906; Norma E. Pfeiffer, Beta of Illinois, 1908; John Adams Taylor, Beta of Massachusetts, 1905; Grace Thompson, Alpha of Wisconsin, 1907, and Ruth Carman, Alpha of Wisconsin, 1913.

**The Extension
Outlook**

A University Extension Division is, primarily, an institution thru which a university expresses its character and its work in terms of the life, thought, and activities of the common people. It does more, however, than serve the institution of which it is a part. For the two most important functions of a university are to give instruction to resident students in the cultural, professional, and technical branches of higher education and to provide for and to promote research and investigation in the important fields of human interest and experience; while those of an extension division are to disseminate the valuable knowledge or information acquired from the research and investigation; to bring as far as possible to the extra-mural people the advantages for culture and instruction offered in residence study; and finally, to serve, under the direction of the university, as a cooperative bureau, or clearing house, thru which many of the educational resources outside of the university may be made available for public service.

To perform this work the Extension Division of the University of North Dakota has organized two bureaus, the Bureau of Educational Cooperation, and the Bureau of Public Service. The work assigned to each is outlined as follows:

BUREAU OF EDUCATIONAL COOPERATION:

Correspondence Study in college and vocational subjects under the direction of the University faculty.

Lectures in series, with syllabi, for study-clubs; single lectures for special groups and general audiences.

Concerts and Recitals for music and culture clubs, and for community lecture and entertainment courses.

Extension Teaching in cooperation with educational institutions conducting continuation and evening schools.

Visual Instruction thru the loan of lantern slides and exhibits.

Debating and Public Discussion stimulated and organized by state contests, bulletins containing formulated questions with briefs and bibliographies, and library loan material.

General Information on matters pertaining to education, state and local government, public health, civic improvement and other subjects of special but common interest.

BUREAU OF PUBLIC SERVICE.

Surveys, Research, and Investigation in fields and on subjects of community and state importance.

Suggestive Aid for county, town and municipal councils, boards and commissions; school boards, commercial clubs, civic and economic betterment associations.

Exhibits, Conferences, and Institutes for public information upon vocational, educational and social welfare matters.

North Dakota offers a splendid field for Extension work. Facilities for transportation and communication are good. There are no sharply divided economic and social interests or classes. The cities are small and well distributed thruout the state. The rural population is made up of an intelligent and land-owning people. The educational and social consciousness in the state is keen. Commercial clubs, women's clubs, and civic societies are organized in nearly all city or village centers. Rural welfare organizations are numerous. The public school system, from the elementary school to the University, is well established. The seven thousand school men and women directing the educational life and thought of the people in the state, have not only high intellectual qualifications, but also a sense of service and a splendid spirit of enthusiasm. Finally, and perhaps most important, is the earnest and sympathetic attitude of the University faculty toward the Extension work. Under such conditions and with judicious management the University Extension Division should be to the people of North Dakota, what Dr. Leipsiger calls the school Extension work in New York City, namely, the People's University.

Re-organization of Physical Education With the coming of Professor Fred L. Thompson and Mr. F. B. Archer as Director and Assistant Director of Physical Education, a new era opens in the history of athletics at the University. Changes have been made in the gymnasium so that it will be devoted entirely to the use of the young men, satisfactory quarters for the young women having been arranged in Woodworth Hall. Under the reorganization of the work it is expected that the student body will be interested in a larger degree in exercise, games and healthy outdoor sports. In addition to this, courses of instruction are to be given that will lay a broader basis for work in the teaching of physical education. It is sometimes thought that athletics are not really to be regarded as a part of university work, but it is coming to be recognized more and more, especially by the universities that are making the most rapid progress, that physical education should be organized on the departmental basis the same as any other branch of university instruction.

While it is desirable also that students should have a part in the matter of coaching and the determining of activities, especially in regard to the management of games and the general details relating to the carrying out of the schedule, yet the final direction of athletics, both at home and abroad, should be in the hands of the department. Any other plan means a hit and miss movement, now up, now down, while the efficient direction of the department will after a time result in a continuous policy that will in the end be accounted the very best thing. Without doubt this new movement and the coming of the men mentioned above will lead to a better and stronger organization of physical education and athletics, and in addition create a greater interest thruout the student body in the work of college sports.

**Faculty Changes
and Additions**

Many new instructors are coming to the University with the opening of the session this fall. Some of these are to fill places that have been left vacant by resignations and others have come to occupy positions that are filled for the first time.

Among the former are Dr. Henry R. Brush, who succeeds the late Professor LeDaum as head of the department of Romance Languages. Dr. Brush is a graduate of Western Reserve University, a Ph.D. of the University of Chicago, and for many years Professor of Romance Languages at Hope College, Michigan.

In the department of German, Dr. George P. Jackson succeeds Professor Pease as Assistant Professor of German. Dr. Jackson did his undergraduate work at Northwestern University and took his doctor's degree at the University of Chicago. He has spent a year in the German universities and been on the instructional staff of Oberlin College and Northwestern University.

In the department of Chemistry, Mr. Daudt resigned last year to accept a government position in Washington, D. C., and his place has been filled by the appointment of Dr. Edward X. Anderson, a graduate of the University of Minnesota and a Ph.D. of Iowa State University. He has been instructor in the latter University. Mr. E. A. Daniels a graduate of the University of Minnesota, B.S. and M.S., has also been appointed in the Chemistry department, to fill a new instructorship created by the Board of Trustees last year.

The department of Economics and Political Science lost a valued member in the resignation of Dr. Meyer Jacobstein to accept a similar position in an eastern university. This vacancy has been

filled by the appointment of Mr. Sveinbjorn Johnson. Mr. Johnson is a graduate of the University of North Dakota from both the College of Arts, B.A. and M.A., and the School of Law, LL.B., and is well known in the state. He has attained considerable success in the practice of law and has had an interesting and valuable experience in the legislative reference library at Bismarck.

Mr. C. E. King succeeds Dr. George P. Caldwell as Assistant Professor of Physiology. Mr. King received his training at Heidelberg University, Ohio, the Rush Medical College and the University of Chicago.

In the School of Medicine and Public Health Laboratory, Dr. C. F. Raver, after a service of nine months as Bacteriologist for the Idaho State Board of Health, returns to his former position here, made vacant again by the resignation of Dr. H. T. Kristjanson, and Miss Alice L. Smith of Bloomington, Indiana, a registered nurse of experience, has been appointed to take Miss Erdmann's place during her leave of absence of a year.

The Extension Division enters upon an era of enlarged activity under the direction of Mr. John J. Pettijohn, formerly Secretary of Extension Lectures at the University of Wisconsin. He will be assisted by Miss Grace Thompson, a graduate of the University of Wisconsin.

Mr. George P. Schlafer, a graduate of Northwestern College, comes to the office of Registrar from a successful superintendency of schools, at Ida Grove, Iowa. He will be assisted in his important duties by Mrs. A. A. Davis, a former student at the University and well known to many of the faculty.

In the Department of Physical Education Mr. Fred L. Thompson comes as Assistant Professor and head of the department. Mr. Thompson is a graduate of Amherst College and of Columbia University, B.S. and M.S., respectively. He is to be assisted by Mr. Fred V. Archer, B.S., of Hanover College.

Other appointments are Miss Lavinia Stewart, an A.B. from Carroll College and a graduate from the Wisconsin Library School, as Assistant in the Library; Mr. Henry Doak, M.A., Dartmouth College, and later instructor at Dartmouth, Instructor in English; Mrs. M. J. George, stenographer and librarian at the Law School; Mr. E. G. Blaine, as University Mechanician in place of Mr. Halik, resigned, Mr. Leon V. Mercer, B.S., Purdue University, Instructor in Shop Work, and the Misses Emma E. Knight, and Clara Conger, assistants in the University Commons.

In addition to these in the University proper, three new people come to the Model High School: Mr. John M. Henry, B.A., State University of Ohio, Instructor in Accounting and Commerce in place of George W. Jones, resigned; Miss Ruth Carman, B.A. University of Wisconsin, Instructor in German, and Miss Mary Hagen, teacher of the elementary school.

Vacation Activities of the Faculty The University of North Dakota closed its regular session for the year on June 18th and reopened for another year on September 23rd thus giving a vacation period of fourteen weeks lacking but a single day. Such questions as the following are often asked: what do the members of the faculty do during these long vacations? Is so much time really needed for rest and recreation? In the great majority of cases the negative answer can be given at once to the latter question. Nor is the time wasted. University instructors, in the main, have too keen an appreciation of the value of time to waste it in such large quantities. But how is it used? Some small portions of it, of course, by all, are spent in recreation and rest, but much the larger portions in serious work. Quite a number teach in the Summer School or are engaged in research work in connection with the University Biological Station at Devils Lake and the Mining Sub-station at Hebron. Some take these uninterrupted weeks to write articles for the press, to write books or to complete books that have been engaging their attention for some time, or to see them thru the press. Others spend the time in advanced study in the great libraries or at some of the graduate schools. Another group is usually engaged in research work at home or abroad, and still others spend the weeks in quiet study at home getting ready for another strenuous year. In nearly every case the time spent and the efforts put forth are for the specific purpose of keeping well abreast of the times in one's own special field—of securing better equipment for the work to be done. And for that the time is none too long. As fair illustrations might be cited the specific activities of two of the instructional force during the vacation just closed: Dr. Joseph L. Lewinsohn, of the School of Law, spent the time in traveling thru various European countries making a study of law court procedure, and Miss Norma E. Pfeiffer, Assistant in Biology, spent the summer at the University of Chicago completing her work for the degree of Doctor of Philosophy. Miss Pfeiffer's thesis, "The Morphology of *Thismia (Bagnesia) Americana*, a New Species," was based on research work with a new and very interesting plant which she herself discovered.

The University and the Geological Congress The University of North Dakota was represented at the Twelfth Session of the International Geological Congress, held in Toronto, Canada, from August 7th to 14th, by Dr. A. G. Leonard, Professor of Geology and State Geologist. The Congress meets every three years, usually in some European city, but Toronto was selected as the meeting place for 1913. The sessions, which were held in the buildings of the University of Toronto, were well attended, nearly one thousand delegates and members representing forty-seven countries in all parts of the world being present. Important papers were presented by many of the most distinguished geologists of Europe and America and the discussions were of great interest.

The Canadian geologists and the people of Canada had made very complete and elaborate preparations for the visit of the geologists and nothing was left undone which could add to the comfort and pleasure of the members of the Congress. A special feature was made of the excursions before, during and after the meetings. There were no less than thirty-one of these excursions, some of those during the meetings being for a day or less, while several of the more extended before and after the sessions were twenty-three days in length. Two of the excursions were to the Pacific Coast by special train with many stops along the way and with provision for those wishing to extend the journey to Alaska, while another visited Quebec and the Maritime Provinces. Each excursion was in charge of a leader who was familiar with the region visited, and a secretary who looked after all the details of the journey and the comfort of those in his party. A very valuable and complete set of guide books had been prepared for these excursions. The thirteen volumes contain descriptions of the geology of the regions visited and are illustrated with numerous pictures and maps.

Professor Leonard was one of the party of fifty who joined the excursion to the famous nickel, silver, and gold districts of Sudbury, Cobalt and Porcupine, all in the Province of Ontario, north of Toronto. For nine days the party lived on the special train and every facility was afforded for seeing the geological formations, the mines and mills in the places visited and for securing specimens.

To commemorate the Toronto meeting of the Congress an elaborate monograph on the Coal Resources of the World, consisting of three large quarto volumes and an atlas, was prepared by the Executive Committee thru the cooperation of many eminent geologists and mining men.

The School of Education

UNIVERSITY OF NORTH DAKOTA

FUNCTION: The preparation of teachers and principals for secondary schools, superintendents for city schools, and instructors for Normal schools and colleges.

ENTRANCE REQUIREMENTS. Two years of work in the College of Liberal Arts regularly required.

DEGREES AND DIPLOMA: The degree of Bachelor of Arts and the Bachelor's Diploma in Teaching (the professional instrument which entitles the holder to a First Grade Professional Certificate), on the completion of the regular four-year course of study.

Graduate courses are offered leading to the degree of Master of Arts.

SPECIAL CERTIFICATES: In Commercial work, Domestic Science, Drawing, Manual Training, and Music, on the completion of two years of prescribed work.

MODEL HIGH SCHOOL: The Model High School for observation and practice in all lines of high school work is in full operation.

GOOD SENSE: If you aim to practise medicine attend the School of Medicine; if you intend to practise law, attend the College of Law; if you would be an engineer, attend one of the colleges of engineering; **and if you are to teach, enroll in THE SCHOOL OF EDUCATION.**

For information, address

DEAN JOSEPH KENNEDY,
University, N. D.

The College of Liberal Arts

UNIVERSITY OF NORTH DAKOTA

Twenty-four departments offering more than *two hundred* different courses of study.

Specially arranged curricula for those who intend to become social workers or to engage in one of the various lines of business, such as banking, journalism, etc.

One year in the College of Law or two years in the School of Medicine or any of the Engineering Colleges may be elected, thus enabling the student to obtain the degree of Bachelor of Arts and a Law, Medical, or Engineering degree in six years.

Graduate courses leading to the degree of Master of Arts.

For further information, address

THE REGISTRAR,
University, N. D.

Announcement

THE QUARTERLY JOURNAL is a periodical maintained by the University of North Dakota. Its primary function is to represent the varied activities of the several colleges and departments of the University tho contributions from other sources are welcomed, especially when they are the fruitage of scientific research, literary investigation, or other forms of constructive thought. Correspondence is solicited.

The subscription price is one dollar a year, single numbers, thirty cents.

All communications should be addressed,
THE QUARTERLY JOURNAL,
University, North Dakota.

Editor's Bulletin Board

THE next issue of the QUARTERLY JOURNAL, April, 1914, will represent the political and social sciences. An exceptionally interesting number is assured as seen from the following titles from which the table of contents will be made up: "Syndicalism and Socialism," by President McVey; "The Sociology of Lester F. Ward," by Dr. John M. Gillette of the Department of Sociology; "Canada's 'Trust Act' Applied to the United Shoe Machinery Company," by Dr. James E. Boyle of the Department of Economics and Political Science; "Statistical Study of the Influence of Environment," by Mr. George R. Davies, of the Department of Sociology; and "The Preparation of Legislative Bills and Legislative Procedure in North Dakota," by Sveinbjorn Johnson of the Department of Economics and Political Science.

The University of North Dakota

SUMMER SESSION, 1914. JUNE 22 TO JULY 31

THE COLLEGE SECTION offers instruction in many college departments including art, economics, education, history, languages (ancient and modern), literature, philosophy, psychology, sociology, and the sciences. The University gives credit for work done during the Summer Session the same as during the regular university year.

SPECIAL FEATURES IN COLLEGE SUBJECTS:

Art: Two lines of work offered: (1) Drawing and painting from still life and nature specimens, and (2) Work adapted to the needs of teachers of drawing in the grades and the high school.

Domestic Science: Advanced courses offered in both cooking and sewing, one course especially designed for teachers of the subject in high schools.

Education: The new school law requires professional equipment of all teachers; to meet the need courses are offered in nearly all of the leading phases of the subject including the history of education, adolescence, principles of education and psychology.

Experimental Psychology: A well equipped laboratory offers opportunities for making interesting experiments in educational psychology. The work is planned especially for teachers.

Library Science: A course of lectures with opportunity for much apprentice work; should equip for successful handling of small libraries.

Manual Training: Excellent facilities for prospective teachers as well as for students doing regular work.

THE BIOLOGICAL STATION at Devils Lake, with all its facilities, will be open for work in botany, zoology, and physiography.

THE ELEMENTARY SECTION is under the management of a Board consisting of the State Superintendent, the President of the University and the County Superintendents of participating counties. It offers work of special interest to teachers in the rural schools, and also to those expecting to occupy grade positions in village and city systems. The State Board of Education accepts creditable work in lieu of examination in certificate subjects.

SPECIAL LECTURES of an educational and inspirational character are offered daily without extra charge. The speakers include eminent authorities in various fields of thought.

THE ENTIRE FACILITIES of the University are at the service of students during the six weeks of the Summer Session. Residence Halls for men and women. *A cool climate and a beautiful campus.* Expenses reduced to the minimum.

For further information, address

THE REGISTRAR, University, N. D.

The Quarterly Journal

VOLUME 4

JANUARY, 1914

NUMBER 2

Christabel, an Interpretation

VERNON PURINTON SQUIRES,

*Professor of the English Language and Literature,
University of North Dakota*

THAT Coleridge's "Christabel" is a remarkable poem is universally acknowledged. The magic of its verse charms the ear and the vividness of its pictures—now beautiful and now uncanny—stimulates the imagination to an unusual degree. These facts are emphasized by all the commentators. In regard, however, to the very important question, What does it mean? there is no such unanimity of opinion. Nearly all the critics pass over this matter without a suggestion. A few raise the question but, so far as I have discovered, no one makes an attempt to answer it. Yet there are certainly strong *a priori* grounds for believing that "more is meant than meets the ear"; and the facts in regard to its composition and publication give suggestive hints as to what that meaning is.

One needs, of course, to beware of allegorizing everything, as the medieval commentators did the Bible. On the other hand, one must not be so afraid of the method as never to employ it. Some of our literary masterpieces derive a great part of their value from the hidden meanings they contain. Among these is Coleridge's other famous poem, "The Ancient Mariner." In spite of the fact that in regard to this also some critics bid us avoid the search for deeper meanings and be content with simply the beauty of the pictures and the music of the lines, it is evident from Coleridge's own comments that he intended it to set forth a great moral conception. The truth is that much of Coleridge's poetical work is even too heavily weighted with thought. Great as were his poetical instincts, his philosophical interests were still greater. Indeed, as everyone knows, the philosopher in him conquered the poet. He who began his literary career as a writer of brilliant verse closed it as a critic and metaphysician. He said of himself, "I am by the law of my nature a reasoner. I can take no interest whatever in hearing or saying anything merely

as a fact—merely as having happened. I must refer it to something within me before I can regard it with any curiosity or care.” In speaking of his early poems he said that their faults were due largely to “the desire of giving a poetic coloring to abstract and metaphysical truths.” Of the poems of Sir Walter Scott, his great contemporary, he said, “Not twenty lines of Scott’s poetry will ever reach posterity; it has relation to nothing.”

On *a priori* grounds, then, it is not unreasonable to assume that in a long poem by Coleridge we have a right to expect something besides romantic imagination and lilting music. One can hardly be accused of indulging a vagary if one insists rather strenuously that the probability is that the work contains some moral truth related in some way to the poet himself.

A clue as to what this moral truth and this relation to the poet are is given us by the circumstances attending the composition and publication of the poem in question. The facts in regard to the publication are in brief these: Tho written many years before (it was read to Wordsworth in 1800) it was not published until 1816, when it appeared in a thin volume of sixty-four pages together with “Kubla Khan” and “The Pains of Sleep.” Of these, “Kubla Khan” is a mere fragment which had been written years before as the result of an opium dream; while “The Pains of Sleep,” tho it cannot be dated with absolute certainty, was also written many years before and likewise seems to have grown out of the poet’s unfortunate opium habit, the circumstances attending its composition appearing to be as follows: In August, 1803, the poet started with his friends, William and Dorothy Wordsworth, on a tour to the Highlands of Scotland. A fortnight later, Coleridge, alleging illness, left his two friends, saying that he must return to Edinburgh. The following week, however, they discovered that he had not returned to the capital but had pushed on northward alone. In regard to this episode Coleridge’s biographer, James Dykes Campbell, remarks, “I suppose Coleridge had found the close companionship incompatible with that free indulgence in narcotics which had become for him a necessity of pleasurable or even tolerable existence.” At any rate in two letters which he wrote at this time he speaks of the terrible nightmare with which he was afflicted, describing symptoms very similar to those which De Quincey relates in a cancelled passage of his “Confessions.” His exact words in a letter to Thomas Poole were as follows: “God forbid that my worst enemy should ever have the Nights and the Sleeps that I have had night after night—surprised

by sleep, while I struggled to remain awake, starting up to bless my own loud scream that had awakened me—yea, dear friend! till my repeated night-yells had made a nuisance of me in my own house.” He then quotes a dozen or more lines of this poem, “The Pains of Sleep.” Campbell accordingly judges that the entire poem was written about this time, and as a result of this experience.

Two of the poems in the little volume of 1816 are thus intimately associated with Coleridge’s unfortunate addiction to opium. The question not unnaturally arises, Is “Christabel,” the third poem in this group, related in any way to the same sad habit? With them it had at least this in common, that it was written long before, (Part I in 1798 and Part II by 1800), but for some reason withheld from publication for many years, until in 1816, when being urged to publish by Lord Byron, and being sorely in need of cash, Coleridge sold the three pieces to Murray for eighty pounds.

As is, of course, readily remembered by all who have read “Christabel,” the poem relates how Christabel, a young and beautiful maiden, meets in the forest, in the dead of night, another apparently attractive damsel named Geraldine. This innocent-seeming Geraldine Christabel invites to share her room with her. We gather, however, from many hints and subtle suggestions that there is something ominous and malevolent about the stranger. We shudder as we read, for we cannot avoid the feeling that some fearful spell is being woven about poor Christabel, that charmed by some fiendish witchery she is being enmeshed in a fatal web whence there is no escape. This feeling reaches its climax near the close of Part I, where Geraldine says,

“In the touch of this bosom there worketh a spell
Which is lord of thy utterance, Christabel!
Thou knowest to-night, and will know to-morrow,
This mark of my shame, this seal of my sorrow;
But vainly thou warrest.”

The Part closes with a picture of Christabel asleep,

“With open eyes (oh woe is me!)
Asleep and dreaming fearfully,
Fearfully dreaming, yet, I wis
Dreaming that alone which is —
O sorrow and shame!”

a passage which is certainly very suggestive of “The Pains of Sleep.”

In Part II we are told how Christabel wakes next morning crying. "Sure I have sinned." Aware in some slight degree, at least, of the spell she is under, she leads the stranger to her father, Sir Leoline, who in a bluff, hearty way bids her welcome. The daughter, however, shrinks and shudders as she recalls the preceding night. But in reply to her father's query as to what ails her, she can only say,

"All will yet be well!
I ween she had no power to tell
Aught else: so mighty was the spell."

Geraldine gives a hint that some deep and dreadful mystery attaches to her person, and then once more turns to Christabel with an uncanny look in her shrunken, serpent eyes. Christabel falls at the feet of her father, crying,

"By my mother's soul do I entreat
That thou send this woman away!"

More she cannot say, and Sir Leoline, who seems completely hypnotized by his guest, paying his daughter scant heed, vows to extend full hospitality to the fascinating stranger.

It is, no doubt, impossible to make this fit, in every detail, into the story of Coleridge's succumbing to the opium habit. No allegory or figure of speech can be made "to go on all fours." Yet to one familiar with the sad story of the poet's falling under the spell of the narcotic which ruined his life, the similarity is surely striking enough to be very suggestive.

Coleridge was first led to the use of the drug because of neuralgic pains for which he found no other relief. His statements concerning the matter cannot be fully trusted; for they are vague and in some cases absolutely contradictory. But the best evidence seems to indicate that his first indulgence was in November, 1796. It cannot be thought that a man so intelligent as Coleridge could have begun to play with opium without some misgivings, especially when he began to realize, as he no doubt soon did, that he was indulging in it not entirely as an anodyne to relieve physical pain, but as a stimulant to quicken his imagination, to help him forget his troubles, and to give him an unnatural and illicit pleasure. As Cottle wrote to Southey, after every possible allowance had been made for "morbid bodily causes," the habit of opium eating in their friend's case was "for infinitely the greater part" motivated by "inclination and indulgence." Coleridge had too fine a moral sense not to recoil

from this. Indeed, he speaks of the "disgust and loathing" which followed the use of the drug, and again and again of his helplessness in its presence. That which at first seemed a kind friend (altho even the first time his conscience undoubtedly reproached him) soon became a demon from whose grip he could not escape. In April, 1814, he wrote to Cottle that the consciousness of his guilt towards his Maker had been his greatest anguish these ten years, but that he had been ignorantly seduced into the opium habit by bodily pain. His whole case is sadly summed up in a letter written to his friend Wade, June 24, 1814.

"Dear Sir, for I am unworthy to call any good man friend—much less you, whose hospitality and love I have abused; accept, however, my entreaties for your forgiveness and for your prayers. Conceive a poor miserable wretch, who for many years has been attempting to beat off pain, by a constant recurrence to the vice that reproduces it. Conceive a spirit in hell employed in tracing out for others the road to that heaven from which his crimes exclude him. In short, conceive whatever is most wretched, helpless and hopeless . . . In the one crime of OPIUM, what crime have I not made myself guilty of! ingratitude to my Maker! and to my benefactors—injustice! and unnatural cruelty to my poor children! self-contempt for my repeated promise—breach, nay, too often, actual falsehood! After my death, I earnestly entreat that a full and unqualified narration of my wretchedness and of its guilty cause may be made public, that at least some little good may be effected by the direful example."

Is it not reasonable to think that *Christabel*, with its story of uncanny witchcraft, is just such a narrative?

One more interesting parallel may be mentioned. In "Dejection: an Ode," written in 1802, he speaks thus of his gloom and despair:

"Now afflictions bow me down to earth:
Nor care I that they rob me of my mirth;
But oh! each visitation
Suspends what nature gave me at my birth,
My shaping spirit of Imagination."

Yet this pathetic cry of one who realizes that he, thru his own frailty, is losing his most precious gift was prophesied four years before by Geraldine who said to her victim:

“In the touch of this bosom there worketh a spell
Which is lord of thy utterance, Christabel!
Thou knowest to-night and wilt know to-morrow,
This mark of my shame, this seal of my sorrow:
But vainly thou warrest.’”

As is well known, Coleridge never finished “Christabel.” How could he? He never himself escaped from the spell of opium; he doubtless realized that he never should escape. The only way he could have ended the poem would have been to represent Sir Leoline’s daughter as sinking steadily under the cursed witchcraft of the enchantress until Death came to her rescue. Despite his statement to Dr. Gillman of a plan for a happy ending—a statement which his intimate friend Wordsworth said could not be true—this was the only possible conclusion. For this he did not have the heart; nor, as the years slipped by, did he have the poetic ability. There was, accordingly, nothing to do but to leave it unfinished. For sixteen years or more he kept it by him with his other opium poems as a sort of confession of his sins. Charles Lamb doubtless knew what it meant; for he is reported to have said that the poem should never have been published.

To me, this poem thus regarded seems far more wonderful than when read simply as a tale of idle medieval magic. The charm of the verse is certainly no less when thus interpreted, while the scenes of witchery take on a pathos and a tragic power which otherwise they lack. After all, a poem which is wrung from a man’s inmost soul is certainly greater than one, equally well written, which is merely tossed off as a play of the fancy.

The Great Refusal

"L'ombra di colui
Che fece per viltate il gran rifiuto."
Dante.

In vain, I tell thee, leech, thy cunning tries
To outwit Death. My moon has known its full,
Nor quails before eclipse. Thy charmed herbs
Are powerless to restore this waning life.
Nay, bid me not be silent: I who felt
This hand too weak to raise and intercept
A beetle, had it headed for my face;
Who swooned into such mimicry of death,
It even deceived thyself—I kenne'd the voice,
Was whispering of embalment when I awoke—
Am strong to speak, must speak, ay, though I knew
To hold my peace were to postpone the shroud!

Mute have I lain here, mute, these days and nights,
And would have gagged delirium itself
And throttled madness lest they babble forth
Thoughts I would mate with silence. My doomed soul
Plunged on amid a sea that clave to it,
Clamorous for jetsam. Why then these my words,
This late surrender to demands of fate?
I know not by what mystic law the heart,
That yields to no brute enginery of force,
Yet opens at the summons of a waft
Of vernal air, the momentary gold
Of dawn, or twilight tinklings of the flock.
What dungeons catapults could not have budged,
Angels have whispered open. Hence I speak.
This morning through the casement stole a breeze,
The softness of whose touch gave evidence
That it had fanned the fig-tree, laved the vine.
Over my brow it shed a summer's fragrance:
I grew aware it was the Paschal Month,
And all my being began to undulate
Like wind-thrilled flame: from out this smoldering life,

Thus breathed upon, jettied forth sudden fire
 That lit up all my past, my murky past.
 The Chosen People entire I saw in dream
 How parceled out in caravans they converge
 To brim Jerusalem, the Sacred City;
 And, bedfast, I was journeying forth in thought
 To wind among the hills and vales by day,
 At night to camp beneath Judean stars,
 To climb with song Mount Olivet, to descend
 And stand within the presence of Jehovah.
 —I burned at seeing upon the Temple still
 The Roman eagle, oft fatally plucked down
 By Jewish frenzy. Yet not haughty Rome's
 Oppression, nor my own exclusion from
 The Feast, did mingle bitterness with morn,
 The bitterness ineffable I felt,
 Till Hezekiah-like, but willing to die,
 I turned my face toward the wall and wept.

Have patience with my weakness. Grant me still
 Some moments' truancy from drug and drowse,
 And thou shalt glimpse the past I now behold,—
 That red volcanic past. Its memories
 Torment a dying bed, and yet it cleanses
 To meditate a great soul's tragic end,—
 His soul, which by its very end perdures.
 How dowered with new interpretative sight
 Become the breaking eyes! how consciousness,
 Already irised for the bursting, holds
 Film-mirrored all the skies of bygone life,
 And planet years, arisen like fixed stars!
 O God, thou Abraham's God, how blind was I
 To interlace my hands about the gold
 Not meant for chaffer chink, but stuff for the ring,
 Had married me unto eternal life!
 For if life's more than power to heave one's breath,
 Than something, seed, nine moons enwombed, comes by,
 Than even aught sucked in with mother's milk,
 Or what, toil-worn, meat, drink, and sleep renew,
 Then long ago I perished. Man, I tell thee,
 Albeit not livid-lipped, a thing embalmed,

May yet be dead ; still alien to the tomb,
So dead, Damascus steel could run him through,
And he would bleed not. Look upon me, look!
I was not still-born ; sweet maternal lips
Anguished not white with such a mockery,
That birth-hour : swaddling clothes that wrapped me, wrapped
Infinite possibilities of passion,
And hopes as beautiful as ever promised
God usury on his loan of time and space.
It was not cerecloth that enwrapped my youth,
But broideries fine like favored Joseph's coat
Of many colors, hiding, too, a breast
Not less athrob. With what a thrill my feet
First trod, unsandaled, sacred temple ground!
How gleams that flashed from Roman shields and glaives
Smote to the quick ! and great that moment's awe,
When poring upon Sacred Roll I knew,
Solemn and sage as the Great Sanhedrin,
Eternal Duty, Righteousness, and Law.
Such vision makes one Hebrew. So time passed
Apace. I entered on incipient manhood,
A cypress like, not as it emblems death,
But greenly spires, slender and sensitive
To scurry of breezes. Thick as leaves my dreams
Hoarded the warmth of those midsummer years ;
And felt first love's infinite moonrise, tranced,
Sylvanly tranced : then knelt the world before me,
Like some meek camel pleading thus relief
From overburden of pearl and orient spice.
What wonder if its driver, that rich moment,
Recked not of leathern water-flasks, if filled,
Or dangling flabby from the dumb beast's flank !
Who'd task me such forgetting when the heavens
Were all mirage of oasis ! Such phase
Of sense-life passed ere youth, already prone
To that world-seriousness wherewith our race
Is dowered uniquely. Yet I could not scorn
Beauty for holiness, in others' wise,
Nor range me wholly on the side of Truth,
There to do battle, wealth and power forsworn.

The riches that were mine by heritage,
I clung to but as means, fastidious
In choice of ends thereby to be attained.
Yet unrest waxed within me. Too clear-eyed
To dupe my soul with vanities and dross,—
Cold to the lure of tinseled make-beliefs,
I quailed at the fierce brevity of life,
Rust and the moth. The chambered past outgrown
Of individual being, soon I knew
Shuddering a weird wizard other Past
Upon me lay its spell. Lone sites of ruin
Long emptied of existence, the mind's ear
Peopled with ghostly steps: old rock-hewn tombs,
With tenantry of some forgotten eld,
And dateless, made me brood till bygone days
Became the sole reality. Emerged,
And back again, even in the city's flux,
I stood as in a trance, and the mind's eye
Sucked midnight out of noonday. By degrees
All zest for action staled. What bootied deeds?
Present achievements were but ultimate
Futilities, and history the tale
Of fearful disillusions. Why should I
With toiling ant-wise vex myself for naught?
Thus by its bath in endlessness, my soul,
Diseased with leprosy of too much self,
Strove to be purged, and only sickened more.
What wonder that my body sickened, too?
Illness doth oft-times wring the human mind
Dry of illusions. The fierce fever-throe
May even be hot enough to shrivel self,
And wilt one's very religion into myth.
Unconscious though one lie, the chemistry
Of pain reacts upon one's consciousness
As on a parchment roll to be erased
For new and alien writ. 'Twas so with me.
Intensively I saw—up from the bed—
What I had only conned by rote before.
Back in the synagogue I felt myself
Mutinous 'gainst the elders who there sit
Lip-loyal to their Talmud lore. Meseemed

Feasts, pilgrimages, sacrifices, tithes,
Sabbaths and fasts, are dead observances
To be sloughed off, lest true religion perish.
Still blushed with bloody offering our altars,
And sputtering flames attested the old faith
Did linger. Yet 'twas semblance, not the substance,
An empty mockery of soulless form.
Better a Holy of Holies without fire,
Arkless, of sacred furniture bereft,
Than cherubim uninstinct with the Presence.
Ay, better Dagon, so the scaly god
Evoked from hearts the veritable Awe!
Thus reason chafed within me 'gainst a faith
No longer Faith—nor there alone in doubt
Questioned where once elate the heart believed.
I had put by, tenderly as dead Love,
The apocalyptic ecstasy and dream,
The poetry of Israelitish hope.
Who quits a grave half-filled, and turns him homeward,
Beholds the world a strange new phantom world,
Through eyes still wet with utterless farewells.
“Must Judah perish, Judah, even Judah,
How blank the world's futurities of time!”
Thus cried my heart within, and then anon:
“If Rome be but Jehovah's winnowing flail,
And we His Chosen Seed—but no,—but no—!”
The lightnings hissed their way through space, and earth,
A moment preternaturally white,
Reeled back into engulfing black once more.

Pillow me up. I've strength. My tale half told
Gives me momentum for what's yet to tell.
—A leech, thou dost recall how once the land
Astonished at a prophet healer: he
Held in the toils of wonder his own province,
And captured all Judea's gaze at last.
Where'er he came there was disease abolished;
Who even brushed his mantle became whole,
However broken; his mere whispered name
Made sightless eyes to see, lame feet to run.
His ministry put forth its noiseless might

Among the obscure and lowly, yet his deeds
 Outmiracled the dreams of prophecy.
 Never such passion for another's weal
 Enrobed itself in Rabbi's talith: mart,
 Hill, plain, where'er his shadow a moment fell,
 Knew an unwonted gentleness abroad.
 The hedge and highway where levitic feet
 Disdained to tread, or trod to bruise and crush
 The chance-sown blossom that co-dwelt with weeds,
 Familiar grew with his mild eyes and welcomed
 As friend his lofty unphylactered brow.
 Unpopulous the hamlets drowsed, the day
 He taught on shore or mount. The multitudes
 Listening till eve felt sunset premature.
 Times were when they who found its noonday shade
 Delectable, and whom the very wealth
 Of intervening foliage made blind
 To the sun-anointed brow, august o'erhead,
 Murmured of crowning this already crowned
 Lebanonian cedar. Were Galilean hills
 Speech-gifted, spake with tongue the Judean desert,
 In whose mute presence oft his soul lay bare
 To cooling and healing night, they would attest:
 Not for a Purpose veering from its course,
 Nor stayed, like birds of passage, light-bewildered
 Or clamor-dazed, gave he the midnight hours
 To rapt and lone devotion. There the stars
 Beheld one purer than the Tiberian waves
 That crooned about the hills on which he prayed;
 And if they twinkled through those long dim nights
 On throneward gropings, 'twas a Throne not builded
 With hands, nor upheld by legions.—One must live
 Not to doubt annals; yet experience
 The ripest feels at moments: Truce to dreams,
 Reality's at war with human credence.
 Leech, he who walked the courts of prayer at night
 To quench hosannas, died mock-crowned, mock-mantled,
 Mock-sceptered! . . .

Ay, the water-cruse! My lips
 Grow parched with speaking. Thanks!—What's human life

But quenchless thirst; and if one come who brings
The cup we swoon for, drouth-delirious madmen,
We dash it down and curse the giver! Once
He came to me: I strewed the ground with shards.
—Beneath the acacia-tree, a stone's-throw hence,
I lounged one day in dreams, his dreams who sends
His soul abroad, searching dim time for light.
Too epic life fell cold upon my ear
Listening: it strained to catch from far-off deeds
The seldom note of the lyric human. Chilled,
I wandered mid marmoreal coronals
Of past dead greatness, till a prayer for life,
Warm-pulsing life not tombed in sacred roll,
Escaped me. Scarce its voice was hushed when lo,
Emerging in the reach of mellow distance,
A nomad band! As one who sees afar
Sluggishness disengage itself from cloud
And grow into a sail, at gaze I stood,
Expectant, half-aware some strange new hope
Was near its natal moment. Sudden gusts
Made shimmer mid the olive groves: date-palms
Loomed lone at intervals. What loitering folk
Kept nearing yonder? Now a dip in the road
Filched them from sight.—Already I had learned
What wondrous things wrought one of Galilee,
As tidings told: the like sick Naaman thrilled,
Hearkening the little captive maid. Ere long
His faring might be hither. Doubtless these
Were only paschal pilgrims, harbingered
By no chance fame. Yet haply—! All at once
My heart waxed prescient of what Visitant
It tarried, and I straightway hied me forth,
Passionate as heat unquivering at noon
Sunward. Anon, our meeting,—they at halt
In wonder. Through his followers I plunged
Infallibly to his feet, and cried: "Good Master,
Declare me sooth, beseech thee, wherewithal
I may attain as thou the life eterne!"
Somewhat delayed his answer, till I dared
Lift up my gaze: I had not dreamed our race
Could kindle into manhood so divine!

But language skills not. That's the potter's art,
 To take a bit of docile clay and with
 Creative touch make it a cup for kings.
 Whose art shall body forth in clayey words
 That visioned Cup, shaped for the King of kings!
 For something even in that face of his
 Bespake a greater greatness than himself,
 A soul compassionate beyond compassions.
 "Good? wherefore call me good?" he breathed at length
 Reflectively. "Who is there such but God!"
 A moment he let intervene, and then—
 "Thou knowest the commandments of the law:
 Do, and thou livest," came his quiet words.
 Impulsively brake from my lips: "All this
 I've kept inviolably even from youth."
 Then what unfathomed tenderness of eyes,
 The while he said: "One thing thou lackest: sell
 All that thou hast and give the poor, and be
 My follower. There shall then be thine instead
 Treasure in heaven." . . . I arose, stood facing him.
 Meseemed a curtain drew asunder: lo,
 What scenery to baffle sight; sheer mount,
 Precipice, snow; nor road to climb, nor—goal!
 A seascape, not the blue with mottling green
 Of summer sea, but whelming shoreless white,
 And one lone ship's distress! . . . Certes, 'twas strange,
 The wisdom he dispensed who yet was wise,—
 The saying from his lips who yet must be
 Interpreter to men of sovereign Word!
 To mint my all into a shining alms,
 Wherewith to gorge the mendicant palm, myself
 Thus beggaring,—what manner of mandate, this!
 What manner of life! Treasure in heaven, and yet
 What life—here, now! . . . Swifter than I can tell,
 Alternatives rehearsed themselves in thought.
 Intrinsically dross, 'twas wealth at least
 Bulwarked me somewhat 'gainst the crude impact
 Of nothingness. Flocks, herds, and acres, were
 The surety for some privacy of dream,
 And walled-in garden-plot of inward beauty.
 Thus I!—and him aface with, nerved with race-nerves,

Along which flashed world-agonies; his mind
A race-mind, drinking like a firmament
The light of stars; a racial heart, his heart,
Tropic with all the ecstasies of man!
How like a shallow pool of muddiest water,
The dwindling life of self beside such vast
Of oceanic living! Purblind I,
To stand not seeing in that hour of test
The contrast! swiftly reasoning instead
After this wise: Who is it bids me thus
By surgery of utter sacrifice
Attain to life? Is't verily life he lives,
Self-generative, inwardly renewing
Itself perpetually in power? He hath
The spirit look, oblivious of things,
Of one who yoke-mates with Eternity,—
The beatific grace of brow, and yet
By very reason thereof, too aloof
And other-worldly for reality,
Perchance a dreamer, not the seer of vision.
Man should not be talaria-shod, and tread
Tenuous ether like a star. Remove
From 'neath one the foundation props of matter,—
Crash!—ay, inevitably, soon or late!
—Slaying the potency of high resolve
By indecision, not direct refusal,
I stood deliberate thus at forking ways.
Involuntarily I gazed about
Upon his followers. Neither staff nor scrip
Had they. Beyond a doubt, discipleship
Meant living hand to mouth, all forethought waived,—
Pruned sense for spirit flowering. Suddenly
I caught as 'twere a leer upon the face
Of one wearing a purse, that from his belt
Dangled, responsive to a clutching hand
Pendulum-wise. Almost I gasped for breath,
With dread stranglingly seized. My heart, till then
Sensitive like a balance, hesitant
What dip to yield, precipitately plunged
By the increment of—was't the purse accurst,
Or snaky leer? . . . A speechless moment's pause,
And I was going from thence.

The water-cruse

Again! . . . With yet a pillow prop me. . . So!
 —Three decades' early and latter rains have brought
 Continuous increase to that fatal wealth
 Whose plenitude hath only pauperized.
 Yet not a life-time's tutoring taught me this,
 Nor Death's immutable "Overboard with it,"
 Heard like a captain's orders in a storm,
 Waxed to the uttermost. I knew before,
 'Twas vanity—but what I came to know,
 Listen! A scant twelve-moon elapsing since
 The event I've told of, in Jerusalem
 I sojourned, fain of throngs, because too much,
 Solitude in its beauty among hills,
 The muffled pastoral lowings from green fields,
 Coerced me into thought. Could but the self
 At will be 'scaped from, as one turns to the wall
 The picture of a dead insistent face,
 I had been happy. As it was, the days
 And nights were gall and wormwood in my cup.
 The selfsame poison-bath of history,
 The reek from spent religion's oilless wick,
 The nation's frustrate Messianic hope!
 Thus inward murk enhanced, which books perused
 But deepened. Men, like vermin to me now,
 Perforce I sought, as one in dungeon vault
 Diverts himself with spiders weaving webs,
 Or mice, stolen in, which thus keep madness out.
 The causeway trod became my opiate,
 The mart my anodyne for pain. Abroad
 I witnessed deeds of violence unmoved,
 Such as inflicted on his countrymen
 Made Moses slay the Egyptian. Populace
 And foreign soldiery in bloody clash
 Daily, nay, hourly, seemed to me as much
 Mechanics as the promontoried shore
 Charged by the legionry of lunar tides.
 Fierce seethed the caldron of the nation's hate
 With bubble and hiss, and desperately the ladle
 Of Roman power kept skimming off revolt.
 Yet martial law imposed upon the world,

Mankind explosively at boil beneath,
Seemed nature spectacle to me, a part
Of brute irrationality, writ large
In elemental hurly-burly, force
Wrestling with matter, while the universe
Looks on, indifferent as Caesar crowned
Which triumph, so but muscle remain taut.
—What wonder that in stolidness, one day
I stumbled on what seemed a street-brawl, part
Of current turbulence supposedly!
Presently in the midst of weltering mob
I had submerged me utterly. A dog
Three-headed, gentile fables tell of, guards
The gates of hell. A myriad-headed wolf,
Tongues lolling and teeth gnashing, thus kept watch
Where Pilate's mansion with its grim facade
O'ertowers the central thoroughfare. The glut
Suddenly merged into one wolfish throat
With "Crucify him!" its reiterate cry
Of frenzy: Leech, hāst swum where tidal seas
Make suction among scooped-out reefs till brine
Is leonine in massed ferocity?
Such did I feel that human undertow
Wherein I swam, thus gaining luckily
The wall-projection clutched and clung to. Meantime
The palace door had oped, through which emerged
The governor into view, and, soldier-led,
Who if not he,—the Galilean prophet!
That instant made me human. . . . I beheld
Glory bedimmed to become glory the more.
Distinctly I could see, albeit afar,
His face above the folded arms. What peace!
What peace!—an ocean's afterglow distilled
And made twice, thrice, an ocean's afterglow!
Darkling stood Pilate nigh, despite the light.
The mob perplexed and angered him as told
His gestures, menacing, expostulating,
To get the hearing vainly sought withal.
Their "Crucify him! Crucify him!" louder
But waxed each moment. Presently a guard,
Signed to, was fetching in an ewer and basin,

And lo, Pontius Pilate governor,
 Washing his hands! That symbol-speech spake home.
 Such frenzied glee! Yet all the while afar,
 He of the folded arms 'twixt soldiers twain
 Perturbless in his peace! . . . I followed him
 A few hours later on his deathward climb
 Up the hill Calvary, and there saw nailed
 His quivering form to a rood, and raised aloft.
 I caught from him a recognizing glance
 Sent down ere the last swoon; nor me alone,
 His eyes remembered: him who sundered us,
 Him of the purse accurst, and snaky leer,
 Him, his betrayer, as 'twas whispered me,
 They turned their full compassionate gaze upon,
 The while he dragged himself toward his doom.
 That lingering gaze turned backward to forgive
 Published the universe—God! . . .

Ay, fan my brow!

—It is a time makes kingdoms warp and crack,
 The epoch ages visibly for death,
 Despair hangs vastly brooding o'er the world.
 There's not a tree about Jerusalem,
 But straining to the requisite height, may serve
 As instrument retributive for us
 Who slew the Anointed One. I see, I see,
 Judgment impends—and penalty which time,
 Elapsing, makes but terrible the more!
 Yet outward desolations, what are they,—
 The scoriac downpour, earthquake shock, and fire,
 Without, compared with desert drouth within,
 From whence in the end more surely a Dead Sea!
 Strange, strange inscrutably, that in our hands
 Choice and rejection thus should lie, whereby,
 Saved or undone, we owe it to ourselves! . . .
 The years flow on, his memory remains,
 As o'er the blue-grey Jordan ever flowing,
 A white cloud anchored lies immovably
 Reflected, through a breathless summer's day.
 Wherever I have dwelt or sojourned, he
 Hath dwelt and sojourned too.—I, 'neath his eyes,

Escapeless. In long watches of the night,
 He came instead of sleep; by day, at tasks,
 A moment's pause for rest, and lo,—his face!
 Hence, too, the ache and pathos of my days,
 To live the Great Refusal o'er and o'er
 In thought and dream,—again, and yet again,
 Him to reject whom fain I would accept.
 Thus in one deed's remembrance is the stuff
 For countless dooms. The beaker spilled became
 A brook, a river, seas! . . . Strengthened and cleansed
 Of vision by austerities lived through,
 I turn my gaze from watery chaos plunged
 Abyssward, to the sheeted mist whereon
 Perpetual rainbow. What if it should prove,
 Defeat to him was Victory indeed!
 Searching, searching, as one with hand agroped
 In darkness, till he ope a door and stand
 Beneath a sky, I ask and win reply.
 Verily depth discovereth itself height,
 The more I gaze! Hence his prophetic eyes
 Recognized in the people's enmities
 Unripened worships; hence even from the cross
 Saw garnered from his three years' ministry
 Millennial corn: therefore he cried aloud,
 "It is finished," and so yielded up his breath.
 The Love which so could fellowship with men,
 Which so could die, slowly my consciousness
 Hath heaved itself through dark tempestuous doubt
 Toward the conviction, it is He, the Christ! . . .

The speaking emptied me of strength, and yet
 In spirit I'm the stronger that I spake,—
 Stronger, and more at peace, as if my heart
 Had been assoiled of blemishment somehow.
 There devious traveling betwixt birth and death,
 And little knoweth the traveler whom he meets,
 And lets go by ungreeted. Presently
 I knew! . . . Draw me the curtain to. I'd sleep.

GOTTFRIED HULT

Department of Greek,
 University of North Dakota

The "Corteggiano" of Count Baldessare Castiglione; a Sixteenth Century Gentleman

HENRY R. BRUSH,

Professor of the Romance Languages and Literature, University of North Dakota

EVERY nation finds a time for the best expression of its national genius. This expression embodies the national genius in a certain type of personality that becomes the highest ideal of the nation and determines its social structure, not only from the contemporary standpoint, but also from that of those racial traits that persist from century to century. Since the peoples of Europe began to awaken to definite national consciousness there have been developed three types of personality which exemplify completely the ideals and strivings of men in the respective periods which formed them. They are, in fact, the periods themselves. These three types,—the *prodome* of the thirteenth century, the "*uomo di virtù*" of the fifteenth and sixteenth, and the "*honnête homme*" of the seventeenth—are the summation of the social, political and intellectual life of the ages which evolved them. To study their rise and their characteristics is to study what men considered highest and best in human nature in those times. They likewise illustrate the change in human viewpoint from the generally pessimistic attitude of antiquity, thru the neutrality of medievalism to the optimism and evolution of modern times.

With the first of these concepts, the *prodome*, we are concerned only by reference. It is outlined in the court epic of the twelfth and thirteenth centuries, particularly in Crestien de Troyes, as a social caste whose slogan was "*noblesse oblige*."¹ This type is the product of the first, or twelfth century, Renaissance. The problem of the later Renaissance and the period immediately prior to it is the transition from medieval fixedness to the evolutionary conceptions of the seventeenth century and modern times. The great product of the earlier part of this period is the *uomo di virtù*, a conception which came into being in Italy, being evolved from the social and political organization of the country.

The political basis of Italy was the independence of the Italian

1. Cf. G. Baist, *Parzival und der Graal*, Freiburg, 1909.

city. As far back as we can go into the mists of Etruscan days we find northern Italy divided into various communities, sometimes warring and sometimes allied.² The Italian city was the only place in Europe that was not feudalized. It therefore became the starting point of individualism, of which fact we see a glimpse in Dante because of his great personality. The Divine Comedy has for this reason a thoroly modern meaning which Dante did not intend to give. In this work we find some sixty persons, citizens of Florence, the account of whom gives us a picture of the Italian city. History tells us how during the lapse of nearly a thousand years the need of military leadership and strong government led to the growth of four republican offices, the last of which was that of war-captain. From this it is easy to see how the dictator was evolved and the republic became a despotism.³

It is precisely these despots who furnish us with the first illustrations of the *uomo di virtù*. Rising to supreme power, not by inheritance, but by demonstrating the highest degree of ability in intellect, diplomacy, courage and strategy, they were the "supermen" of the Italian commune. Families like the Sforzas and Gonzagas in Milan, the Medicis in Florence, the Estes in Ferrara, present a list of strong personalities. Personality and individualism are qualities which are inseparable. While a characteristic of the *prodome* was to be like every other *prodome*, the first trait of the *uomo di virtù* is to be himself. Nothing shows more markedly the change in viewpoint than this.⁴ Not only did the heads of these families above-mentioned distinguish themselves as soldiers and rulers, but they showed themselves the patrons of art and learning, and even as artists and scholars of no mean degree. The conditions which are responsible for their evolution are then the result of several elements,—the inherited political structure of the land, the widening of human view which came from the new geographical discoveries at the end of the fifteenth century, the revival of learning which in part came from those Greek scholars who fled from Constantinople when that city was taken by the Turks in 1453⁵ and the racial psychology of the Italians. In

2. Cf. Butler, **The Lombard Communes**, London, 1906, pp. 22 ff.

3. Cf. Butler, **op cit.**, Chap. XIII: **Ueber die Anfaenge der Signorie in Oberitalien**, p. 26f.

4. Cf. Petrarch: **Est sane cuique naturaliter, ut in vultu et in gestu sic in voce et sermone quiddam suum, ac proprium, quo colere et castigare quam mutare quum facilius tum melius atque felicius sit.** (from a letter to Boccaccio, quoted by Brunetière, **Manuel de la littérature française**, Paris, 1899, p. 49).

5. The classic spirit may indeed be said to have never been entirely absent from Italy. In fact its radiance ever declined beyond a twilight. Dante, Petrarch and Boccaccio in the fourteenth century are the heralds of the later awakening. The year 1396 saw established at Florence the

short, a prodigy like Lorenzo de' Medici, who was not only a statesman and a ruler, but was also able to write, to play and to paint, is a direct product of such a combination of circumstances as we have briefly summed up. To lead such a life as Lorenzo did was no easy thing and it is small wonder that he excited marvel and admiration, even in such a period as the Renaissance when man and his mental power were accorded a higher dignity than ever before or since. The *uomo di virtù*, as thus constituted, stands out as a colossal figure in that "most tragic of centuries," as Burckhardt calls it, namely, the sixteenth. Small wonder is it then, that such a figure arouses our curiosity and admiration, even after the lapse of nearly four centuries.

II.

It is interesting to turn to a contemporary picture of the *uomo di virtù* as it is depicted by one who in himself combined many of the essential qualities of such a man, one who by personal acquaintance with the great personages of his own country and many others was able to record what men felt to be the necessary attributes of the prince and the courtier. Such an author is Baldessare Castiglione⁶ and such

first professorship in Greek by Manuele Chrysolorus who stimulated the collecting of Greek MSS. In Leonardo Bruni's (Aretino) *De studiis et litteris* we have the foundation of the modern classical education. Cosimo de' Medici established a library at Florence; similarly, the libraries at Urbino, at the Vatican and at St. Mark's in Venice came into being. As a sequence to their establishment came the formation of the academies such as the *Accademia de' Colombari* and the *Accademia della Crusca* with their neoplatonic philosophy. Cf. Walter Pater's essay on *Pico della Mirandola*, Symond's *Revival of Learning*, Chapters IV, VI and VII; Sandy's *Harvard Lectures on the Revival of Learning*, Cambridge, 1905; Burckhardt, *Civilization of the Italian Renaissance*, pp. 134ff., 217ff. and 388ff.

6. Castiglione was born Dec. 6, 1478 on his father's estate of Casatico in Mantuan territory and was a contemporary of Michaelangelo, Titian, Cesare Borgia, Raphael and Luther. His parents were Count Cristoforo Castiglione, a soldier-courtier, and Luigia Gonzaga, a relative of the Marquess of Mantua. He studied Latin at Milan with Giorgio Merula and Greek with Demetrios Chalcondylas, an Athenian who had fled from Byzantium in 1447. After a time at the court of Ludovico Sforza at Milan, he returned to Mantua to serve his natural lord, in whose service he made the acquaintance of the French. Later (1503) he went to Rome, met Duke Guidobaldo di Montefeltro and entered his service, thus becoming a member of the brilliant group at the court of Urbino. In 1504 he attended the duke at the papal siege of Cesena, the next year accompanied him to Rome and in 1506 went to England to receive from Henry VII the Order of the Garter on behalf of the duke. Various other missions followed and, on the duke's death in 1508, he continued in the service of his successor, Francisco della Rovere, whom he followed on various expeditions, being rewarded in 1513 by the title of Count of Novillara which he soon lost by Medici usurpation. He was ambassador to the sacred college during nearly the whole of the pontificate of Leo X. In 1516 his lord lost the duchy of Urbino by treachery and Castiglione retired to Mantua where he married. A son and two daughters were born to him and he became a widower in 1520. He then resided alternately at Mantua and Rome, to which place he frequently went as ambassador, demonstrating learning, wit, taste, disposition and integrity that secured him high favor. In 1524 Clement VII sent him as ambassador to the court of Charles V of Spain but he was too honest a man to cope with the deceit and intrigues of Madrid. Disasters and a later disapproved charge of treachery bore hard on his health and, altho hon-

a book is *Il Corteggiano*, the vast influence of which is shown by the evidences of translation and multitude of editions. It was written partly at Urbino and partly at Rome between the years 1508 and 1516 and was first printed at the Aldine Press in Venice in 1528. Since this first edition there have been published no less than 143 others, Italian and translations. The first translation was in Spanish by Boscán⁷ which was rapidly followed by a French version by Jacques Colin,⁸ an English version by Thomas Hoby,⁹ a Latin version by Hieronymus Turler,¹⁰ and a German version by Lorenz Kratzer.¹¹ Its vogue in the sixteenth century was enormous. No less than 100 (possibly 101) of these editions were published prior to 1600. Publication was not so frequent from that time on; yet, the seventeenth century is represented by 14 editions and the eighteenth by 11, while in the nineteenth century 17 editions appeared. The latest text is that of Opdycke, an English translation published in 1903.¹² More than half of the editions (77) are in Italian,¹³ eighteen are in Spanish, all being based on Boscán's translation, seventeen are in French, seventeen in Latin, twelve in English¹⁴ and two in German. The majority of the Latin texts are reprints of a translation into Latin by Clerke, an Englishman, and date for the most part from the seventeenth century. These statistics are more than a dry statement of facts. The existence of so many Latin versions is in itself an evidence of the authority ascribed to the work; it is also interesting to note that only one of the Spanish texts dates from later than 1600 and that the French texts are also largely confined to the sixteenth century, while in England and Italy the publication of Castiglione's work seems to have been perennial. It will be evident that a work which called for so many translations and reprints must have appealed deeply to the upper classes of society, particularly in the century which gave it birth.

ored by Charles, he died at Toledo, Feb. 7, 1529. His body was brought back to Italy and buried in the church of Madonna delle Grazie near Mantua. Besides *Il Corteggiano* he was the author of various Italian and Latin poems of more or less indifferent merit. A more detailed account of his life may be found in Opdycke. (Cf. E. Opdycke, *The Book of the Courtier by Count Baldesar Castiglione*, (translation), New York, 1903, pp. 313-315) from which this resumé is largely drawn.

7. Barcelona, 1534.

8. Paris, 1537.

9. London, 1561.

10. Wittenberg, 1561.

11. Munich, 1566.

12. According to the title page: the appendix, *op. cit.* p. 422 gives the date as 1901.

13. Opdycke mentions a revised edition by Professor Cian as being in preparation; I have found no mention that this has yet appeared.

14. The last three editions are English translations.

III.

An analysis of "*Il Corteggiano*," or "*The Courtier*" as we shall henceforth refer to it, will amply explain the reasons for this popularity. Let it be said here that the purpose of this article is not to discuss any of the technical questions of authorship, of personalities or of historical illusions, of which the book gives so fruitful a field. These questions have already been treated by competent scholars in a more detailed and extended manner than is possible in this article.¹⁵ It is our intention to outline Castiglione's ideas concerning the personality of the courtier, this *uomo di virtù*, show how these ideas became authoritative, were gradually transformed into the French type of the *honnête homme* of the Age of Louis XIV, and at last came into final decadence with the type of the Beau Brummels.

The Courtier consists of four books, largely in dialog form, which represent the substance of imaginary conversations¹⁶ between various lords and ladies at the court of Urbino in March, 1507. Some of these personages, notably Pietro (later Cardinal) Bembo, Giuliano de' Medici, Francesco della Rovere (the author's patron), Ludovico Da Canossa, Elisabetta Gonzaga (wife of Guidobaldo di Montefeltro) are individuals of great historical note; all are more or less known to history.¹⁷ Castiglione himself, probably from modesty, does not appear in the dialog, but it is reasonably certain he was present at the time Pope Julius II visited Urbino. It was immediately after this visit that the author tells us the discussion arose. In the letter of dedication, address to the Bishop of Viseu, a Portuguese churchman and scholar whose close friend he had become, Castiglione states he wrote the book as a testimonial of his pleasure in the companionship of Guidobaldo di Montefeltro, Duke of Urbino, and of the notable persons who had visited at that court. He speaks of having composed it "in a few days."¹⁸ The MS. was given to the famous lady, Vittoria della Colonna, and while the author was in Spain he learned that, contrary to her promise, she had allowed portions to be transcribed and that, as the transcriptions were "in the

15. Cf. Pietro Toldo, *Le Courtisan dans la littérature française et ses rapports avec l'oeuvre du Castiglione* (in *Herrig's Archiv*, C. iv., pp. 75 and 313; C, v, p. 60; also Mary A. Scott, *Pub. Mod. Lang. Assoc.*, Vol. XVI (1901), No. 4.

16. Not an uncommon form in Italian literature; cf. Boccaccio's *Decameron*, which, it will be remembered, sprang from a group of aristocratic personages who had fled from Florence during the plague in order to divert their minds from its horrors.

17. For a detailed list of characters, cf. Opdycke, *op. cit.* pp. 317-24.

18. This is merely an apologetic depreciation; we know that Books I-III were written 1508-9 and Book IV in 1513-16, while the whole was revised until 1518.

hands of many people at Naples," an unauthorized version might appear at any time. To avoid this he revised the work and published it out of justice to the parties who are mentioned as participants in the discussion.

From Castiglione's description it is easy for us to picture the little group at the court of Urbino making merry with jest and play after the departure of the Pope and his retinue. The Duchess Elisabetta herself, stately and sedate, presiding as hostess, Emilia Pia, her confidante and a relative by marriage, the Duchess' nieces, Margarita Gonzaga and Constanza Fregosa, form the feminine portion of the gathering. In addition to the men already mentioned there are various young courtiers, all of whom have at times a part in the discussion. It was a group well qualified to discuss the qualities of courtiership and the courtier.

Castiglione addresses all of the books to Alfonso Ariosto, a cousin of the poet Ludovico, at whose request he says it was written.¹⁹ He begins by describing Urbino and the duke of Guidobaldo, of whose life he gives an extended account, bearing tribute to his wise counsel and unshaken spirit in the midst of vicissitudes of fortune and health.²⁰ He explains that by reason of his infirmities the duke was wont to retire early after supper, leaving the Duchess in charge of the company. Various amusements are proposed, but none meet the approval of the ladies until Frederico Fregoso, one of the lesser courtiers remarks, "I would that this evening's game might be, that we select one of the company and give him the task of portraying a perfect courtier, explaining all the conditions and special qualities requisite in one who deserves this title." All are agreed and the Duchess appoints Count Ludovico da Canossa as first speaker upon the subject.

Canossa's assigned theme is the Courtier in general,—his birth, appearance, training, both physical and intellectual, his accomplishments and occupations. Canossa states first that the courtier must be nobly born,²¹ thereby demonstrating how deeply the aristocratic ideal had laid hold upon renaissance Italy. This insistence upon nobility is the most characteristic fact in Castiglione. The Courtier

19. Cf. Opdycke, *op. cit.*, p. 17.

20. "And proof of this is found in his many and diverse calamities which he ever bore with such strength of mind that his spirit was never vanquished by fortune." Cf. Opdycke, *op. cit.* p. 10.

21. "It is far less unseemly for one of ignoble birth to fail in worthy deeds than for one of noble birth; . . . noble birth is like a bright lamp that manifests and makes visible good and evil deeds, and kindles and stimulates to virtue, both by fear of shame and hope of praise." Cf. more extensively Opdycke, *op. cit.*, pp. 22-23.

must also be handsome; beauty of person and figure and a gracious air are ornaments which should dispose and unite all his actions so that his outward aspect conforms to the birth which nature has given him.²² This requisite illustrates the Italian love of beauty in its outward forms. The discussion which follows Canossa's premises but affords the author an opportunity for further elucidation. He next shows that "the principal and true profession of the Courtier should be that of arms." Perfect loyalty and unconquered courage are his attributes. "Let the man we are seeking," he says, "be very bold, stern, and always among the first where the enemy are to be seen; and in every other place, gentle, modest, reserved, above all things avoiding ostentation and that impudent self-praise by which men ever excite hatred and disgust in all who hear them."²³ His aspect should not be soft and effeminate, but manly; he must be well-built and proportioned, able to handle every sort of weapon well on horse and on foot and also proficient in wrestling. Nor must he be ready to fight save when honor demands it. Great stress is laid on good horsemanship and among other athletic accomplishments and sports are listed hunting, swimming, leaping, running, throwing stones, tennis, vaulting,—in short, he is to be a veritable athlete.

But this is a view of the sterner side of life. To relieve the strain "let him laugh, jest, banter, frolic and dance, yet in such fashion that . . . everything he may do or say shall be stamped with grace."²⁴ Canossa's insistence on grace elicits a query as to the means of attaining it and his reply affords an admirable side light on the training of the gentleman. His education should begin early; he should imitate his master and also observe those of good repute. Grace implies doing things without conscious art.²⁵ Here follows a digression upon the sin of affectation, enabling the author to discuss language and literature, bearing tribute to the influence of Boccaccio and Petrarch and upholding the doctrine of imitation which was the watchword of the century.

Resuming the discourse, Canossa urges upon the Courtier the need of learning in order to be able to speak and write well. His tone in conversation is prescribed as "not too thin and soft . . . nor stern and rough, but sonorous, clear, sweet and well-sounding, with distinct enunciation, and with proper bearing and gestures,

22. Cf. Opdycke, *op. cit.*, p. 23.

23. Cf. *op. cit.* p. 26.

24. Cf. *op. cit.* p. 32.

25. "We may affirm that to be true art which does not appear to be art; nor to anything must we give greater care than to conceal art, for if it is discovered, it quite destroys our credit.—" Cf. *op. cit.* p. 35.

. . . tempered with a calm face and with a play of the eyes that shall give the effect of grace, accord with the words and . . . express . . . the speaker's intent and feeling."²⁶ Castiglione spends considerable time in the discussion of the subject matter of conversation and in this, as well as in his outline of the Courtier's literary training, he shows himself as a critic of no small ability and also demonstrates how firmly the new learning had taken hold of the upper classes. The most important part of the literary training is the instruction in the humanities. The Courtier is to be "conversant not only with the Latin language but with the Greek, for the sake of the many different things that have been admirably written therein."²⁷ This is truly a far cry from the medieval ideal. Learning and arms are to be combined, increasing the Courtier's ability to distinguish between false praise and the true and to avoid the flatterer.

Having done with book learning, Canossa (or rather, Castiglione) proceeds to the fine arts. The Courtier must be a musician, not only able to enjoy music, but also to play upon divers instruments. Much space is given to the power of music as a stimulus to the mind and body. Quite unwillingly we pass over a long and eloquent tribute to music.²⁸ The Courtier should also be an artist, not only as a painter, but also as a sculptor. Another long discussion on the relative merits of painting and sculpture is interesting and shows clearly the association of Castiglione with Michelangelo and Raphael. His prepossession for painting is clear.

With this the conversation for the evening is brought to a close. We have seen the Courtier depicted as a combination of the heroic virtues of the medieval champion, the scholar versed in the humanities, the devotee of the fine arts and the gentleman in society. Like some of the company of Urbino, we may feel inclined to call the picture overdrawn; yet, if we cherish a doubt, we have but to recall Lorenzo de' Medici and be silent.

As the spokesman for the second evening the Duchess appoints Federico Fregoso, one of the lesser gentlemen, and directs him to describe how the Courtier is best to make use of the great powers of mind and body with which he has been endowed by taste and training. It is not easy to summarize the subject matter of the second book because, as will be understood from the subject, it is so largely

26. Cf. *op. cit.*, p. 45.

27. Cf. *op. cit.*, p. 59.

28. Cf. *op. cit.*, p. 64.

a matter of detail, every point becoming the basis of an extended discussion of which it is impossible in a limited space to give even the barest outline. Before presenting the speaker of the evening, Castiglione devotes some space to contrasting ancient times with his own day, incidentally showing himself to be no pessimist. Federico begins by accepting all of Canossa's theories as to the qualities of the Courtier. Having then these gifts, in order to make the most of them to win praise justly from men and the favor of the princes whom he serves, he must so use his good qualities as to avoid exciting envy.²⁹ He must be cautious in every action, mingling good sense with all he says or does, knowing his capabilities and utilizing them to produce the best results. His attributes should balance,—gentleness with a violent spirit, modesty and boldness, a doing but not a boasting. Let him avoid affectation but preserve discretion. Just as it is wrong to seek unmerited renown, so also "it is wrong to defraud oneself of the honor that is one's due."³⁰ His weapons, horses, dress, etc., should be above reproach and he must needs shun the society of rustics as being beneath his dignity. All contests should be with his equals and when indulging in public sports he should mask himself so that the dignity of a courtier may not be lowered. Discretion must always be his guide as to what he may permit himself to do. Federico (i.e. Castiglione) is a hater of the plebeian. "It pleases me well," he says, "that we should avoid the crowd, and especially the ignoble crowd."³¹

The conversation here becomes general and deals with the question of when a man is at his best. The best courtier is assumed to be the man of middle age who "has left the faults of youth behind and has not reached those of old age." Certain qualities of the Courtier are quite suggestive of the stoic. He must preserve his equanimity, not being impetuous nor yielding to sudden wrath.³² In his conversation "he must not be an idle or untruthful tattler . . . nor a pointless flatterer." He should rarely or almost never ask anything of his lord for himself nor will he seek to intrude upon his master, and will above all, be careful to avoid wearying him.³³ This self-effacement should never extend to being more backward than his rank warrants, and he may well expect his deserts. "To have the

29. Cf. *op. cit.*, p. 82.

30. Cf. *op. cit.*, p. 84.

31. *Ibid.* p. 89.

32. A common notion in the Renaissance; Cf. "Car tous les biens que le Ciel couvre et que la Terre contient en toutes ses dimensions . . . ne sont dignes d'esmouvoir nos affections et troubler nos sens et espritz" Rabelais, *Pantagruel*, Book III, Chap. 2.

33. Cf. Opdycke, *op. cit.*, p. 93.

favor of princes, there is no better way than to deserve it." He should be fluent on occasion and prudent and sagacious in discussing statecraft. Loyalty is a prime virtue and the Courtier should leave the service of a bad master whose orders he cannot loyally obey. In fact he should not obey bad orders as being contrary to his master's honor and good.

Again comes the question of externals. Eccentricity of dress is condemned, and Castiglione praises especially the sobriety of the Spanish costume, while he is not so prepossessed by the French and German styles. The Courtier's garb must, in brief, be neat and dainty, but never effeminate.

Friendships receive considerable space. The Courtier should have one perfect friend and confidant; Castiglione goes at length into the duties of friendship³⁴ and is evidently speaking with personal reference, probably having in mind the Bishop of Viseu. He next considers the games in which the Courtier may engage, chess being the most favored. As we may well suppose, all agree that the courtier has no time to attain great proficiency in such diversions.

An interesting digression is a discussion about which nation,—Italian, French or Spanish—produces the best type of courtier and Castiglione is inclined to side again with the Spanish. He was evidently much impressed by the Spanish, and it is worth while remarking this prestige of Spain in a sixteenth century book; nothing is more eloquent of her political domination. The Courtier should know the languages of the three nations mentioned, both because of their political importance and because of the need of converse with courtiers of these races.

Resuming, Castiglione cautions the Courtier against becoming a slave to habit; he must strive as far as he can towards perfection, yet never making a pretense of being what he cannot be, altho it is well for him to beware of displaying his ignorance. The question of the Courtier's conversation³⁵ is of more than passing interest as it shows the beginning of that brilliant conversational style that French society developed to such a high degree in the salons of the seventeenth century.³⁶ Polish, grace, entertainment, instruction,—all are essentials and the subject makes helpful reading in an age like our own in which the art of conversation has fallen from its high estate. Particularly is this true of the matter of witticisms and pleasantries.³⁷

34. Cf. Opdycke, *op. cit.*, p. 107.

35. Cf. *op. cit.*, pp. 119-122.

36. Cf. Lanson, *Hist. de la Litt. fr.*, 5e. ed., Paris, 1898, p. 373.

37. Cf. Opdycke, *op. cit.*, pp. 125-162; some of Castiglione's illustra-

No more to be sought are the coarse jests and clownish pranks of which medieval literature is so full, but instead, the warmth and brilliancy of subtle repartee and sarcasm in which dignity is never imperilled. We have numerous examples of what to choose and what to avoid. Irreverence and indecency are strongly condemned and also too great an indulgence in pleasantries. Witty remarks must never be directed against honorable women. Here the current neoplatonism is strongly marked. Coming after a time which produced the *Cent Nouvelles Nouvelles* and other salacious works, Castiglione strikes a new note and one that is a bit in advance of his age. True, he gives us Pallavicino as a spokesman for the old attitude, but it is evident that his sentiments are repugnant to the rest of the assembly. It may seem inconsistent to us that during the course of the debate some very free talk is indulged in, considering the ladies present; nevertheless, these were times and people of free speech and the significant fact is that women are vindicated. Chivalry to women is a quality the Courtier must possess, not merely the outward kind, but that which is genuine and extends to thought and attitude. It is a far cry from the *Decameron* to the *Corteggiano*. It is also very evident that in the Duchess and Emilia Pia the author is representing the true lady of the sixteenth century, whose virtue is esteemed and whose mentality is respected. With these remarks the second book ends.

The concluding discussion of Book II serves to introduce the third book which is intended to give an outline of the Court Lady and what her characteristics must be in order that she serve as a fitting companion to the Courtier. As usual, Castiglione begins the book with another digression, bristling with classical allusions and culminating in a tribute to the feminine personages of the Urbino court. He then proceeds to make Giuliano de' Medici the spokesman for the evening, who begins by enumerating the essential qualities of the true women. Just as a man is best distinguished by manly qualities, so woman's truest charm is a "soft and dainty tenderness with an air of womanly sweetness in her every movement . . .

tions are too good to omit; cf. p. 140,—“This same method was used by Sallaza della Pedrada in complimenting a lady with whom he was speaking. First he praised her for her virtuous qualities and then for still being beautiful; and she replying that she did not deserve such praise because she was already old, he said to her: ‘My Lady, your only sign of age is your resemblance to the angels who were the first and oldest creatures that God ever made.’” Again,—“When Galeotto da Narni, on his way thru Siena, stopped in the street to ask for the inn; and a Siennese, seeing how fat he was, said, laughing: ‘Other men carry their wallets behind, but this one carries his in front.’ Galeotto at once replied: ‘that is the way we do in a land of thieves.’”

which . . . shall always make her seem the woman without any likeness to the man.³⁸ She needs mental accomplishments for "many faculties of the mind are as necessary to woman as to man." Beauty is even more necessary to her than to the Courtier as it is a part of the charm of womanliness. A certain "pleasant affability" befits her, she should be frank and agreeable, but never descend to unbridled familiarity, she must show herself a tactful conversationalist. She should practise such bodily exercises as are fitting to woman and with that shyness that forms a part of her charm. In dress she must avoid seeming vain or frivolous. In education Giuliano wishes for her a knowledge of letters, music, painting as well as of dancing and making merry. These are her accomplishments, while continence, magnanimity, temperance, strength of mind, prudence and other virtues are her adornments.³⁹ Giuliano pays his respects to the older conception of woman's powers in no uncertain terms, making it plain that he has no patience with the theory that woman is a less perfect creation. In the debate between him and Gaspar, who takes the opposing view,⁴⁰ the author leaves very little unsaid. Especially interesting is the anticlerical tone which Giuliano takes in his comment on how the priesthood have bewitched and belittled the mind and position of woman. It is a note of the Reformation, sounding clearly and early.⁴¹ Giuliano supports amply his side of the debate by quoting a host of illustrations from the classics, concluding the list with tributes to many contemporary dames, among others, Queen Isabella of Spain, to whom he ascribes a large portion of Castilian success in the struggle with the Moors. The dual standard of living comes in for long consideration and Giuliano comes very near to maintaining that men should be as virtuous as women, truly an advanced notion for the sixteenth century. Gaspar curtly dismisses his side of the case by remarking, "The world has no good from women except the bearing of children." Giuliano's final tribute is well worth remembering.⁴²

38. Cf. Opdycke, *op. cit.*, p. 175.

39. The century produced many women who exemplify Castiglione's precepts; cf. among others, Marguerite d'Angouleme, the sister of Francis I of France.

40. Cf. Opdycke, *op. cit.*, pp. 182-187.

41. *Ibid.* p. 189.

42. "Who does not know that without women we can feel no content or satisfaction throughout this life of ours, which but for them would be rude and devoid of all sweetness and more savage than that of wild beasts? Who does not know that women alone banish from our hearts all vile and base thoughts, vexations, miseries, and those turbid melancholies that so often are their fellows? And if you will consider well the truth we shall also see that in our understanding of great matters women do not hamper our wits but rather quicken them, and in war make men fearless and brave beyond measure. And certainly it is impossible for vileness ever again to rule in a man's heart where once

The latter part of the book is devoted to the question of how the Court Lady should receive love and talk upon it, a natural sequence to what has preceded. She must be taught to distinguish those who pretend to love from those who love truly. "Who loves much, speaks little,"⁴³ says Giuliano. The Court Lady must only allow herself to love a man whom she can marry and such a man she can teach to love her. Here Aretino remarks, "Love was never taught me save by the divine beauty and divinest behaviour of a Lady whom it was beyond my power not to adore, wherein I had no need of art or any master." The favor of ladies is to be won by serving and pleasing them and whoever would be loved must love and be lovable.

At this juncture Emilia Pia enters the discussion to voice the attitude of the women present. "He who loves," she says, "ought also to begin to please his beloved and bend himself wholly to her wishes, and govern his by hers; and make his own desires her slaves and his very soul like unto an obedient handmaid, nor ever think of aught but to let it be transformd, if possible, into that of his beloved, and to account this his highest happiness: for they do thus who love truly." With which sentiments Aretino heartily agrees. There is a great deal more upon the subject and it reads like the seventeenth century novel to which it doubtless contributed this tone.⁴⁴ The book closes with a detailed account of how a lover may lawfully circumvent a rival. Ottavio Fregoso is then deputed to treat of incidental and final qualities which go to make up the Courtier's perfection.

As is the case with the first three books, Castiglione prefaces Book IV with an introduction, consisting of eulogistic, obituary notices on certain of the participators in the discussion whose deaths occurred shortly after the supposed debate. Likewise are we told of the promotions and changes in fortune of several others and the whole series of events affords the author an opportunity for moralizing on the vicissitudes of life.

After so much space devoted to the nature and qualifications of

the flame of love has entered; . . . nor does he stop at risking his life a thousand times a day to show himself worthy of her love." Cf. Opdycke, *op. cit.* p. 219. This is plainly not the note of the medieval troubadours but a rewording of the spirit of Dante and the neoplatonic ideal.

43. Cf. Opdycke, *op. cit.*, p. 223; this is the forerunner of the pastoral note and the précieux attitude which Molière satirizes in *Les Précieuses Ridicules* q.v.

44. Cf. Opdycke, *op. cit.* p. 232; Molière, *Les Précieuses Ridicules*; Mlle. de Scudéry, *Clélie*, Paris. 1656-60; Mme. de la Fayette, *La Princesse de Cleves*, Paris, 1678.

the Courtier and his consort, the Court Lady, it is not surprising that we find an account of the aim of all this perfection. This is, in brief, to "win for himself . . . the favor and mind of the prince whom he serves, that he may be able to say, and always shall say, the truth about everything which it is fitting for the prince to know, without fear or risk of giving offense thereby."⁴⁵ He shall see that the "Prince is deceived by no one, shall hearken not to flatterers or to slanderers and liars, and shall distinguish good and evil, and love the one and hate the others." The chief errors of the princes of the day are ignorance and self esteem, the basis of which is falsehood. Thruout the whole of Book IV Castiglione is constantly making more or less veiled allusions to the governmental evils of the time, from which Italy was so regularly a sufferer. Instructive indeed are his counsels to the Courtier about the means by which he may accomplish his purpose; suffice it to say that they involve infinite tact and truthfulness, together with the utilization of all the high powers with which he is supposed to be gifted. He attempts to refute the theory that a man is inherently either good or bad and asserts that both vice and virtue may be acquired. Reason is the faculty which is to be in command. Quite in the style of Descartes and Pascal he maintains the supremacy of the reason and will over the passions. Temperance and continence are compared to the advantage of the latter, it being likened to "a good prince . . . who destroys seditious enemies within, and gives reason the sceptre and whole dominion."⁴⁶ It is a virtue especially befitting princes and tho it does not "wholly remove and uproot the passions from the human mind . . . for even the passions contain some elements of good; it reduces to the sway of reason that which is perverse in our passions and recusant to right."⁴⁷

Naturally a discussion of princes involves a consideration of the various modes of government. Ottaviano supports the rule of a good prince as being the order of nature; Cardinal Bembo, singularly enough, stands for a republic as preserving most fully that liberty with which God has endowed man. Ottaviano now replies, evidently voicing the real sentiments of Castiglione, and maintains monarchy as the best sort of rule because it is the opposite of the worst,—i.e., tyranny. After all, he says, "True liberty is not to live as we like, but to live according to good laws."⁴⁸ In outlining

45. Cf. Opdycke, *op. cit.*, p. 247.

46. *ibid.* p. 257.

47. Cf. Descartes, *Les Passions de l'Âme*, art. 212.

48. Cf. Opdycke, *op. cit.*, p. 261.

the character of the benevolent despot, quite as Frederick the Great might have done it, Castiglione seems to be giving rather plain hints to the despots of his own time. A prince's life should partake both of the active and the contemplative, more particularly the latter, and the aim of the active should be the contemplative, just as the aim of war is eventual peace. It is hard not to see in all this a strong condemnation of the mania for conquest of which the author's time gives so many examples. One wonders how the great rulers of the day and even many of the petty Italian princes, not even excepting the Pope, must have regarded these sentiments. Castiglione even goes so far as to inveigh against the folly of training a people for warfare and conquest. It is not to be supposed that the advocates of a military ideal would let the discussion terminate without bringing forward the advantages of war, its assistance in cultivating the rugged virtues, etc.⁴⁹

Education is the chief means of inculcating virtue and instruction is most effective in so far as it trains habit. For a considerable portion of the succeeding pages Castiglione is evidently drawing heavily upon Plato for whom he has an express admiration. We are enlightened as to the means of forming a government, how justice is the most important thing and, that, since piety towards God is the duty of all men, the religious element in a state is a most essential factor, etc. A prince should love his land and people, should cherish those near him according to their degree, should not rely upon aliens (a hit at mercenaries) to safeguard his state and should avoid the domination of riches over his subjects. After all "it is not the number, but the worth of their subjects that makes princes great." His picture of the ideal prince⁵⁰ is worthy of a note and suggests an inevitable contrast with Machiavelli. In warfare we have a recrudescence of the crusading spirit, evidently prompted by the successful close of the Spanish campaign against the Moors. Foresight is a necessary companion to the virtues enumerated, and Castiglione again spends considerable time in eulogizing contemporary princes. In

49. *ibid.* p. 267.

50. The ideal prince possesses a "regal splendor and readiness of mind and an unconquered valor in war which should make him loved and revered by everyone. . . . I should tell him also that he ought to accompany his greatness with a familiar gentleness, with that sweet and amiable humanity and a fine manner of caressing both his subjects and strangers with discrimination . . . always preserving . . . the majesty due his rank . . . and not to abate one jot from overcondescension nor . . . to excite hatred by too stern severity. . . . He ought to be very generous and splendid. . . . I should seek also to induce him to erect great buildings, both to win honor in his lifetime and to give a memorial to posterity," cf. Opdycke, *op. cit.* p. 274. These are, of course, indications of the way in which the Courtier should seek to guide his lord,—the aim of courtiership.

listing his examples he also draws much from ancient history, again showing his familiarity with Plato and Aristotle.

The last portion of the book is entirely devoted to a summary of courtiership, particularly as it concerns the affections. This is one of the most interesting portions of the whole work and in it we find neoplatonism in the most unadulterated form. It is far too long and detailed to discuss in our present treatment, much as we may desire to do so, but it will well repay a careful perusal.⁵¹ Pietro Bembo is the speaker here and as he continues to develop the subject he becomes more and more ecstatic until he arrives at such mystical heights that he carries the audience and ourselves to the realm of the empyrean and we cease to be conscious of anything but a rapt, glorified frame of mind in which clarity of thought is not always to be found. Beauty, which springs from God, is the source of love. It causes all things, all things depend upon it. The national love of beauty comes here to as full an expression as may be found anywhere in Italian literature. Tho the Courtier in his early years may be allowed his mesure of sensual affection,—rather a low view we may remark—his later and genuine love must be spiritual, considering that “the body wherein this beauty shines is not the fountain from which it springs, but rather that beauty (being an incorporeal thing and as we have said, a heavenly beam) loses much of its dignity when it finds itself joined with corruptible matter.” Let the courtier thus “enter on the path of divine love, with reason for guide.” Much is said of the ethical value of the kiss,⁵² and the soul is “conscious of a certain far-off perfume of true angelic beauty, and ravished by the splendor of that light, she begins to kindle and pursues it so eagerly that she becomes almost frenzied with desire to unite herself to that beauty, thinking that she has found God’s footstep, in the contemplation of which she seeks to rest as in her beatific end.” These scant quotations will serve to give some idea of Bembo’s ecstasy, than which no clearer idea of Italian neoplatonism can be found. Castiglione himself shows the source of it all at the close of the book when he records the names of Plato, Socrates and Plotinus among the list of those who have been so divinely moved.

IV.

Such is the conclusion of *Il Corteggiano*, of which the preceding pages have attempted to give a more or less disconnected outline.

51. Cf. Ogdensko, *op. cit.*, pp. 289-299.

52. *ibid.*, p. 300.

It is so intimate a mingling of racial psychology, history, politics, learning, esthetics, philosophy, social manners and customs that a bare summary affords only a faint idea of what a mine of information it actually is. In it we find clearly the fusion of those elements,—the republican spirit of the North-Italian commune, the personality of the *uomo di virtù*, the revival of learning, the neoplatonic philosophy, the inherent Italian love of beauty, the scientific discovery and the changed religious and political thought—which go to make up the ideal man of the Renaissance. It is a novel in that it depicts contemporary life and manners; it is a *Tendenzschrift* in that the author is manifestly composing a textbook by which the princes and courtiers of his time may regulate their ways. The individual depicted is that magnificent conception of a human being in which the Renaissance delighted,—that intermediary between God and the common herd, “a little lower than the angels and crowned with glory and honor.” The ideal is, of course, intensely aristocratic, not in the feudal sense alone where might meant right, but in the moral and intellectual sense to a far greater degree. Learning and education are the elements out of which the character of the courtier is formed rather than the power of the strong arm which is merely an accessory. Back of all lies the insistence upon the nobility of birth, which Castiglione assumes is the God-given patent, the fundamental condition, which prevents the man of lower station from ever lifting himself into a higher sphere. The aristocracy which Castiglione depicts is as far as possible removed from the ideals of our modern life, but, after all, it is an aristocracy in the real sense of the word.

It remains to outline briefly the influence which Castiglione had upon Europe, particularly upon France, the nation that was to rise into the front rank during the succeeding century. To his Italian contemporaries the book presented itself as the crystallization of a type which had in the course of time developed among them. The Courtier and courtiership were existent facts about which all had varying conceptions and no one a clear-cut notion. Altho we cannot place too much reliance upon the author's statement that an actual dialog such as he gives really took place at the particular time and locality that he says it did, we need have no hesitation in readily believing that conversations on the subject were frequent among the lords and ladies of his acquaintance at Urbino. Just as the more cultured of France gathered in the salon of Madame de Rambouillet to escape from the coarse pleasantries and crudities of Henry IV's court, thereby in their discussions laying the foundations of the

French Academy and French society, so the talk which Castiglione heard at Urbino and at Rome gave him the point of view and the material out of which, together with his own learning, he constructed the *Courtier*. The book is the depiction of the national ideal of the gentleman and represents not Castiglione alone but the consensus of contemporary opinion. His originality, like Rousseau's, lies in his ability to put together what the cultivated men of his time were thinking but which no one had happened to express. As to its popularity, the list of sixteenth century Italian editions speaks louder than any chance citations from contemporary literature. Possibly the most significant testimony is given by the author himself on the first page of his dedication when he speaks of the many unauthorized copies of it that were made from the first draft in the hands of Vittoria Colonna. Men do not make manuscript copies of a book unless it contains material of absorbing interest to them.

As for Spain it would be surprising indeed if the courtiers of Charles V did not show a similar interest. With the Spanish armies repeatedly upon Italian soil about the time that *The Courtier* appeared and with the author himself an ambassador and a welcome resident at the Spanish court, this epitome of courtiership could not fail to be attractive. That no less noted an author than Boscán made the first translation of the book into a foreign language and that within six years after the first Italian edition is a fact that needs no comment. Spain was a fruitful soil for such a work. Her nobles were but recently free from a seven-century warfare with the infidel and peace reigned in the land whose riches were swollen to enormous proportions by the treasures of Mexico and Peru. The time was ripe for the erection of an aristocracy of polished gentlemen to whom *The Courtier* could serve as a fitting textbook.

It is in France, however, that the most far-reaching effect was produced. Coincident with the campaigns of Charles VIII and Louis XII⁵³ in Italy came an immensely increased knowledge of the Italian people and culture on the part of the French. Not only the soldiers of the French kings but the leaders themselves marvelled at the architecture, learning and polish of their transalpine neighbors. Italians came over the mountains and established colonies in various parts of France, notably at Lyon, which became the center of Italian thought and manners.⁵⁴ Frenchmen of literary note took up

53. Charles VIII went over in 1494; Louis XII in 1501.

54. Cf. the neoplatonic school of poets at Lyon in the sixteenth cen-

the new learning with avidity and described the glories of Rome with an enthusiasm akin to worship.⁵⁵ The Italian language pervaded the French until French literary men began to protest against the host of innovations.⁵⁶ From the very first, the French nobles with their shrewd observation saw they were deficient in learning, manners and, above all, in courtly usage. As compared with the lords of Florence and Milan they were coarse and uncouth; realizing their deficiencies, they began to imitate their more cultured neighbors. How rapidly this went on is shown from the *Courtier* itself⁵⁷ which mentions the Duc d'Angoulême (Francis I) as a gentleman quite up to Italian traditions. We may also cite the Chevalier Bayard, the knight *sans peur sans reproche*, who met his death in the campaign of Francis I against Charles V.⁵⁸

There are two distinct periods in this Italian influence upon French life and literature,—a period of imitation and a period of adaptation. For final results the latter is by far the more important. As regards the noble himself, we find the French courtiers in polish of manners, in cultivation of science, literature and art, and in respect for learning in general, imitating the ideal which Castiglione describes. Figures of prime importance such as Francis I, his son, Henry II, Cardinal du Bellay, the patron of Rabelais, and others, are direct imitators of the characters we find in the *Courtier*. Marguerite d'Angoulême is a capital example of the court lady whom we have had described in Book III. Gifted with talent and trained by education in the classics and in Italian, we see in her the leading French exponent of the type outlined by our Italian author. The description of perfect love she gives in the *Heptameron* reads like a translation of the rhapsody of Bembo in Book IV of the *Courtier*.⁵⁹

Coupling these illustrations with the manifest vogue of *The Courtier* in sixteenth century France, as manifested by the editions and translations, we easily see how vastly the Italian ideal outlined

tury which comprised such poets as Maurice Scève and Louise Labé; cf. Darmesteter-Hatzfeld, *Le 16e, siècle en France*, I. p. 92.

55. Cf. Joachim du Bellay, *Les Antiquités de Rome*, ed. Marty-Laveaux, sonnets xii and xiii, pp. 269-270.

56. Cf. H. Estienne, *Nouveaux dialogues du langage française italianisé*, in Darmesteter-Hatzfeld, *op. cit.*, Part I, p. 77.

57. Cf. Opdycke, *op. cit.*, pp. 56-7.

58. Cf. Brantôme, *Memoires-Vie des grands capitaines*, quoted by Darmesteter-Hatzfeld, *op. cit.*, II, pp. 70-75.

59. Cf.—"Mais à cause que les sens par lesquels elle en peut avoir nouvelles, sont obscurs et charnels par le péché du premier père, ne luy peuvent monstrier que les choses visibles plus approchantes de la perfection, apres quoi l'âme court, cuidans trouver, en une beauté extérieure, en une grace visible et aux vertus morales, la souveraine beauté, grace et vertu, etc." *Heptaméron des Nouvelles*, Nouvelle XIX. Vol. II, p. 111, ed. Leroux de Lincy.

by Castiglione pervaded and influenced the Gallic race. The French court up to the time of the religious wars manifests this influence more and more until progress was halted by the ferocities of the Reformation struggle. The stern nature of this conflict, comprising not only religious bigotry but also political ambitions and personal enmities, ensured decades of bitter civil war of a kind forbidding the development of any courtly society on the scale found in northern Italy. Culture and intellectual activity, so far as the nobles were concerned, went into a state of hibernation until peace should be restored to the land.

This dawn of better things came, of course, with the reign of Henry IV, whose queen, it will be remembered, was a daughter of the Medici. Henry himself, as the bluff warrior of the camps, was none too addicted to courtly ideals, but towards the end of his reign we see the organization of the aristocratic class into worldly society. For two centuries this minority maintained its social and literary supremacy. French society, as Lanson says, is only a "reduction and an adaptation of Italian court life."⁶⁰ Just as in *The Courtier* we find highly developed that cultivation of conversation which made of court circles a forum in which mind met and contended with mind, so French social life had as its basis the "sociability of intelligences."⁶¹ Indeed, the first salon wherein mind polished mind was formed by a half-Italian,—Madame de Rambouillet.

There is, however, a point of essential difference which arises from racial distinctions. The Italian mind is creative, the French far less so; but, on the other hand, possesses a rationalizing power which does not belong to the Italian. The chief office of French genius has been to take up the original ideas of others and interpret them for the benefit of the rest of mankind. No great conception passes thru French minds without material modifications, and we are not surprised to discover that the Italian ideal of the courtier as elucidated by Castiglione is altered in many particulars. Of these the most essential is the substitution of the *honnête homme* for the Courtier of Castiglione. The mainspring of French life is, and always has been, the bourgeois class. From this have come France's intellectual leaders in all centuries. Rabelais, Montaigne, Descartes, Pascal, Racine, Voltaire, Molière, Rousseau, Hugo,—need we give more illustrations? While Castiglione's prince and cour-

60. Cf. Lanson, *op. cit.*, p. 368.

61. Cf. Lanson, *op. cit.*, p. 369.

tier must absolutely separate themselves from the vulgar herd even Louis XIV in the midst of his splendor was accessible to the meanest of his subjects. Castiglione makes it plain that the high type he depicts is first of all aristocratic and denies to those born without the pale of nobility the privileges of attaining the highest distinctions of mind and position. The passage (Opdycke *op. cit.*, pp. 24-25) is characteristic of the Italian attitude and emphasizes nobility of birth as the prime quality, the absolute essential of the Courtier. As a contrast we find the essentials of the *honnête homme* as described by Pascal⁶² to be moral and intellectual powers. The courtier merits a tribute of ceremony; the *honnête homme* the homage of esteem. The French type of man has not an elegance so keen or rich as the Italian but it is immeasurably more rational and practical. At the court of Urbino Castiglione shows us the Medicis, the Bembo, the Montefeltros; in the salons of France we find the Corneilles, the Voitures, the Mme. de Sévigné. If the Duc de la Rochefoucauld appear, it is less in the guise of nobles than of thinkers. The outward form of the intellectual supremacy of the aristocracy is preserved, but in reality the mind that dominates is bourgeois. This will explain why in Italy the intellectual ideal spent itself in the *indifferenza al contenuto*⁶³ which makes Italian literature of the seventeenth century a meaningless waste at the same time that in France intellectual life became broader, deeper, better and more influential. While we find in *préciosité* a French attempt at the extravagance to which Italians fell a victim, we also see a bourgeois critic of colossal proportions, Molière, laugh this excrescence out of existence.⁶⁴ Art, which in Italy became a deity to be worshipped without regard to thought, became in France a critic and a means to reduce thought to orderly, systematic and cultivated expression. In this way the transcendent ideals of the Italian Renaissance were presented in an intelligible form to matter-of-fact England and docile Germany.

But it may be suggested that we have strayed far from Castiglione in this treatment, apparently savoring more of literature and learning than of personality. A moment of reflection will, we think, suffice to repel the charge. The courtier of Castiglione's ideals is a man of so many tastes and abilities, all of which had specific phases

62. Cf. Pascal, *Sur la Condition des Grands in Pensées de Pascal*, éd. Louandre, Paris, (no date), pp. 483-492.

63. i.e. "disregard of content"; the efforts of Italian poets in the century in question were devoted to polish of form and refinement of art while the thought was left to take care of itself.

64. Cf. Molière, *Les Précieuses Ridicules*.

and were so variously imitated, that it is difficult to outline even the qualities of the paragon; the kindred type in France deserves parallel comment. We must remark what the reader has doubtless already recognized, namely, that anything of the nature of a summary easily lends itself to superficiality and the partial treatment of many ideas, none of which can, on account of lack of space, receive the attention due them; also, the bulk of proof in quotations must be omitted if the treatment is not to be unwieldy.

We have been attempting in this article,—

I. To set before the reader the ideal Italian gentleman of the early sixteenth century, as the type is delineated by Castiglione. This delineation, we understand, is not only a precisising of a notion already existing in the minds of men, but it is also a model for the author's contemporaries and succeeding generations.

II. To show the popularity of the Italian conception as taken up by the Spaniards and the French. Further, that the first French types of the Italian originals, such as Francis I and Marguerite d'Angoulême, are the results of direct imitation and that, as in almost all other matters, here too the French respond to Castiglione's influence, first by simple copying.

III. To explain and illustrate how, after the civil wars of religion in France were over, the nation continued in its process of forming a cultivated society. At the basis of this society lies the ideal already set forth in Italy, but the French genius rationalized its Italian model into the *honnête homme*, an essentially bourgeois figure, not so artistic nor so grandiose nor so intense, maybe, but immensely nearer to the common level and more intelligible to all. The *honnête homme* is the man of the court of Louis XIV, that is to say, the man of the seventeenth century.

It remains only to remind the reader that, due to the prestige of the reigns of Louis XIV and Louis XV, the French court became the training school of manners. The *honnête homme* is therefore the model for the English nobleman of contemporary date, at least so far as is consistent with racial peculiarities. Having once lowered in certain characteristics, the courtly ideal tends to approach still more closely the bourgeois level. In France, the immorality of Louis XV's court degraded the gentlemen but a strain of the sixteenth century grandeur is still existent among the nobles who met death on the guillotine during the Revolution. The latter seems to have dealt real nobility its deathblow and only a shallow mockery survives in the Castellanes and others of their ilk. In England, the

type of the courtier loses little by little its old significance until we see it vanishing with the pathetic and ridiculous figures of the Beau Brummels. It is truly a long road from the splendid figure that is outlined in the debate at Urbino to one of the society dandies of the nineteenth century, and the change marks the difference between an age when a few are equal at the top and an age when many are equal on a lower level. We have gained something and yet have lost something.

The world owes a debt of gratitude to Castiglione. He caught popular attention at a time when men were willing to turn a ready ear to learning, culture, manners and nobler ideals. Before them he placed an ideal to which they responded, with the result that polish and refinement were vastly increased. Truly, such an outcome was distinctly worth while. No more important or enlightening a book can be placed in the hands of one who seeks the social forces of a nation in the literature which that nation produces.

The Theater as a Power*

WILLIAM FAVERSHAM,

Actor

IN being asked to come before you, I realize the honor is paid me because of my association for so many years of my life with the theater.

I must tell you that I began my work in the theater, or I shall say, study of the theater, as a boy. No one can give so many years to a cause without feeling that of that subject he is capable of seeing something of the vital truths belonging to it; consequently, it is of the theater that I shall speak to you. The business of my life has been the theater; but there is always the *dream*, as well as the *business*, and it is the *dream* that has made it interesting.

I feel quite frank in saying that I owe everything to the theater. I had an elder sister whose belief it was that boys from nine or ten years on should see everything that was good and worthy and well done in the theater; consequently, between the ages of nine and eighteen, I was taken to the Lyceum Theater, in London, on an average of three times a week, where I was able to see Henry Irving and Ellen Terry in Irving's masterly productions of Shakespeare. In this theater I was afterwards able to watch many rehearsals. In the other London theaters I saw much of the work that was done by Mr. and Mrs. Kendall, Mr. and Mrs. Bancroft, Charles Coghland, John Hare, Wilson Barrett, and our great American actor, Edwin Booth. I even saw Barry Sullivan and Dion Boucicault; also Rossi, the great Italian actor.

This may lead you to believe that I am an old man, masquerading as a youth! I was born on the same date as Abraham Lincoln, only about 62 years after.

The conditions of my life made it so that instead of being sent away to school for any great length of time, I lived at home, the only boy amongst a number of women. I think the average person would have thought that I was very badly brought up, but I saw, between the ages of ten and seventeen, all the best that England could give in the way of the theater. At the age of seventeen I ran away to become an actor and humourously, it seems to me now, my family was much amazed that I should do so!

*An address given at the University of North Dakota on September 25, 1913, upon the occasion of Mr. Faversham's presentation of Shakespeare's *Julius Caesar* in the Metropolitan Opera House in Grand Forks.

I don't know whether you know about what they call "caravan fit-ups" in England, but when I disappeared to join a troupe of players, it was in one of these "caravan fit-ups" companies. I often slept in a bath-house, because generally at the sea side places where we played we could not find rooms within our means: but I had compensation for all physical discomforts, for I played a great many of the leading classical roles, including "Hamlet" which I did on Saturday nights. A friend has since said that the management wisely arranged that so that the people could recover over Sunday!!!

It was a very joyful-miserable way of living. We were studying and working at Shakespeare, Scott, Lytton, Dickens, and the other Classics, not to mention all of Ouida's romantic books that were possible of dramatization. It was, indeed, a world of romance and dreams we young fellows lived in—but also a world of high ambitions.

It seems to me that no institution has had so varied and so curious a career as the theater. Take it from the time when the old religious plays were done by the priests, and of which such an excellent description exists of a Fifteenth Century Mystery play in Charles Reade's "*The Cloister and the Hearth*," when young Gerard, the hero, sees his first play. I quote the following:—

"From another group he learned there was a Mystery being played under canvas hard by, and all the world gone to see it. This revived his hopes, and he went and saw the Mystery. In this representation, divine personages, too sacred for me to name here, came clumsily down from Heaven to talk sophistry with the Cardinal Virtues, and Nine Muses, and the Seven Deadly Sins, all present in human shape, and not unlike one another. To enliven which weary stuff, in waddled the Prince of the Power of the Air, and an imp that kept molesting him and buffeting him with a bladder, at each thwack of which the crowd were in ecstasies!! When the Vices had uttered good store of obscenity, and the Virtues, twaddle, the Celestials including the Nine Muses went gingerly back to Heaven one by one; for there was but one cloud and two artisans worked it up with its supernatural freight, and worked it down with a winch, in full sight of the audience. These disposed of, the bottomless pit opened, and flamed in the center of the stage; the carpenters and Virtues shoved the Vices in, and the Virtues and Beelzebub and his tormentor danced merrily round the place of Eternal Torture to the fife and tabor."

"This entertainment was writ by the Bishop of Ghent, for the diffusion of religious sentiment *by the aid of the senses*, and was an average specimen of theatrical exhibitions so long as they were in the hands of the clergy." But, as Charles Reade goes on to say, "In course of time, the laity conducted plays, and so the theater, I learn from the pulpit, has become profane."

Of course, I might use this story of Charles Reade's in retaliation, or answer, to Dr. Dixon, that recent gentleman of the Church, who claimed that the theater meant nothing but evil, and could see nothing of value in it. This clergyman proceeded to say that out of the productions in New York last year, there were *five plays* that the critics said were not fit for the public to witness. When you consider that there are over seventy theaters in and around that city, the many hundreds of productions that can go in them during the year, all that fell under his ban were *five*. This seems to me to speak well for the drama of the present moment but, and this to me is the most important matter, the sooner we get rid of those five, the better. The point is, you must not allow those five evil trees to grow any branches.

Perhaps it would be well to determine how far I feel that the theater exists as an influence in the life of a country. I rank it high, very high. It is as great as the pulpit, if not greater. This is demonstrated by the fact that our very buildings are sought by the clergy to deliver their lectures, sermons, talks, call them what you will. We have a medium which is more appealing to the people. Ninety-five percent of the people remember what they see and hear—five per cent, what they read. One explanation of this is the fact that the people in our modern, work-a-day world tire their brains out during their working hours and therefore, enjoy their problems, or their sermons, or whatever they feel inclined to receive, from the stage of the theater, because it is visualized for them.

Do not most of our great lecturers take a hint from the theater, and use the colored pictures to illuminate their lectures? In London, Canon Carlisle, of St. Paul's, used colored pictures and a brass band in his services to attract the people.

The theater could be the greatest educational factor in the world—sometimes it is. We may not be able to learn in it that two and two make four (altho I have an idea we can do that pretty well!); we may not be able to learn mathematics, chemistry, and a few of the other sciences, but we can learn history, geography, music, painting, costuming, proper speech, and deportment: for the actor who

takes his calling seriously and realizes the responsibilities and duties that are his has to gain a knowledge of all these departments of which I have just spoken.

In no profession are so many beneficial educative forces employed as in the theater. We bring to youth the best of literature and the best of music to support our literature. We employ scenic artists who can visualize and stir the imagination as ably as a masterpiece in a gallery and we also give life and illumination to work that would never reach the masses but for the art of acting. That is, we do all this when we do it worthily, and it is being done worthily, day in and day out, by splendid bands of men and women who go from one end of the United States and Canada to the other—many who work for more than money, believe me. I could tell of so many instances where men and women have been tempted to do inferior work for which they would have been paid very highly, but which they have refused in order to do the finer, nobler things of the theater. In no case was there a better exemplification of this than in the late Sir Henry Irving, who died a poor man but who gave the best that the theater had to our generation. Another example is seen in that great and wonderful actor, Edwin Booth, who lost a million and a quarter dollars, for which he had worked hard, in trying to do the finest things for the theater and our profession generally. No minister in his pulpit, no novelist in his book, ever swayed a great populace for good more than did an Irving, a Booth, or a Modjeska.

And so my plea is, think of the theater as an educative force. And now I must explain that I do not ask you merely to approve, or think of the theater as patronizing plays that are serious-minded. I have always claimed that one must give the great masses of people an entertainment, and then "tag" on all the art you can, and if we do this we find that we will grow artistically, both those behind and those before the footlights. No one is a greater lover of comedy, musical comedy, and a really fine music hall, than I am; but I think some of the cheap bids for sensation by exhibitions of moral and physical depravity that are growing thruout the United States should be checked by some strong organization. Even the best of musical comedy and the lighter form of entertainment must be taken in moderation by an intelligent public.

But I feel extremely optimistic that all that is for the best in the theater is coming about. The last ten years have worked wonders on the American stage, by bringing to us a fine class of men as playwrights. And too, the courses of our best colleges now include the

literature of the theater. Men like Professor Baker of Harvard, Professor Phelps of Yale, and Professor Armes of California are heart and soul in the movement of education thru the drama, and the best works of our modern dramatists are being studied with the best of the classics.

Behind the footlights the same progress has been made. Every year I notice a higher standard of young men and young women coming into our profession in all departments. This is sufficient cause for gratitude, as it is impossible for a young man or young woman to arrive at any large position in the theater who does not come to us already prepared, or who is not willing to ground himself, or herself, well in an educational way. On one point we have great difficulty, and in this I feel that we can claim the theater as a great educative force, and that is good speech. You know there seems to be a very serious resentment, even amongst very well-bred people, when it comes to correction of speech. This applies to both sides of the water. The Englishman who enters our profession with his "heah," "theah," and "deah," is just as bad as the American with his "tuh" and "yuh." They are both affectations, and they are impossible in the theater. There is much too much slang spoken, much too much lax pronunciation, and too little thought of diction in the private life. Amongst the young people it is sometimes thought that speaking pure English is an affectation, while really the dreadful dialect that one hears so often amongst even the better classes is an affectation, as it surely does not belong to the minds and the culture of those men and women. Not only few private schools but few dramatic schools seem capable of coping with this.

The best school to enable beginners on the stage to overcome this is in a good company under a leader who really pays attention to the English that is used, and for the younger people surely no better example can be given them than to be taken to hear a company of men and women who are giving some thought to the beauties of their language. I was taken, as a boy, to the theater often three times a week, to listen to the pure speech and diction of some prominent actor or actress who might be playing at the time.

To me, the glory of our language is the purity of its speech, the beauty of its diction, and I feel today that a great deal of this is being lost by our younger generation here in America and Canada. So many of the young people I meet, either socially, or who come to me to work, are lax in this matter to a point that is almost criminal. Some few years ago a very clever young actor came to me about an

engagement. I wanted to engage him because I knew that he had fine qualities in him for the theater. During the first few moments of our conversation, he told me that he didn't want "tuh" play "heavy parts," and he wanted "seventy-fi" dollars a week, "an'", was willing to take less in "Noo Yuk." Of course, I wondered what would happen at rehearsals if I started to ask him to correct these mistakes; however, "I took a chance" and engaged him. It took nearly one season—he used to blush, and get very embarrassed and once told me that he was afraid people would think he was effeminate!! But he finally conquered it, and I don't think there is today upon the stage a man who speaks better English, and who has a finer voice than this same young actor. He is going ahead, as I knew he would.

Without beauty of speech, no great work can be accomplished by the actor, especially in the interpretation of the classic roles. The reason why we have so little authoritative interpretation of the classic and poetic work now is extremely simple. The young actors cannot speak it, they cannot manipulate the words, they cannot maneuver the lines. Let me explain an elemental matter with an elemental illustration. A very great woman in our profession, Carlotta Le Clercq, gave me the following poem as an exercise:

"An Austrian army, awfully arrayed,
 Boldly by battery, besieged Belgrade,
 Cossack commanders, cannonading come,
 Dealing destruction, devastating doom.
 Every endeavour, engineers essay,
 For fame, for fortune, fighting furious fray,
 General 'gainst general grappled, grasping good;
 How honors Heaven, heroic hardihood!!"
 and so on.

We used to have to say it very, very slowly, until gradually in the course of a week or so, we were allowed to run it off as fast as we could. The exercise, of course, you all know, but I have just repeated the first few lines so you will understand what I mean by this example.

Another study, which is so necessary, is the study of vocal culture, and people entering our profession today seem to have forgotten that it exists at all—that it is absolutely a necessity.

It has never been an easy thing in our profession, or in any profession, to do great things greatly and to find a great public. One

can always do the *obvious* and the *easy* work and get a very good recompense; but it is the striving after the unattainable that is the joy of every artist.

When I became my own manager, I produced two plays that the managerial world said could not possibly succeed—that I was more or less crazy to attempt to produce them. One of these plays you have seen in this city. It was "*The World and His Wife*," the other was Stephen Phillips' "*Herod*." "*The World and His Wife*" made a small fortune, and was proclaimed by most of the big critics thruout America as perhaps the greatest modern play of our times. "*Herod*" was likewise proclaimed by the critics the finest blank verse play since Shakespeare, and while "*Herod*" cost a lot of money to produce and run, still its financial earnings were very large. Neither of these plays was an *easy* play to do, and they were not what one could call *obvious* plays,—but by producing them I found that I brought around me a following that was ready to accept anything I might announce, because they knew I would not do plays that were *easy* and had no meaning to them beyond a couple of hours' unintelligent entertainment.

The drama always has been and is always, at all times, in every country, in a state of needing encouragement. That is the reason why the new organization, the Drama League, can prove one of the greatest forces in modern times for the benefit of the public and of the artist behind the scenes. When they speak of the "good old days," it is only necessary to get out Goldsmith, Hazlitt, Peyps, or Lamb, and hear them bewailing the fact that the people were not encouraging the best of the dramas. In connection with this, I can tell you, I think, a very interesting fact. It was the women in England who restored Shakespeare to the theater. During his time, the plays were played. Then they gradually fell into disuse, and the Puritans finally succeeded in abolishing the theater and Shakespeare. When the Restoration came, the theater was restored, but in a degraded form and with degraded material, and when Shakespeare was done at all, he was mutilated. It was not until the 18th Century that Garrick restored Shakespeare to the theater; restored him, to a great degree, as he should be played. A band of women had assembled and were having reading classes of Shakespeare. In these classes Shakespeare was read as he was written, not with all the interpolations which had been made by various people and which clung to his work like a fungus growth. These women appealed to Garrick and gave him so much encouragement that he finally made some

of the finest productions of Shakespeare that have ever been given. He admits himself that it was from these women that he received his greatest inspiration. Is not this a fine thing for women to accomplish—to have made a Garrick feel impelled to do the great poet's work nobly?

I am going to quote a poem written in 1818, by Rev. George Croly. It seems to me to express the representation of Shakespeare's plays so vividly. I may add before I read these few old-fashioned lines, that Shakespeare's plays have been very severely hurt by certain schools of acting which seem to think that they must be represented with inhuman stilt and strut and noise and mystery. There is no mystery about them. They are perfectly simple and human.

“Time rushes o'er us; thick as evening clouds,
 Ages roll back:—What calls them from their shrouds?
 What in full vision brings their good and great,
 The men whose virtues make the nation's fate,
 The far, forgotten stars of humankind?
 The *stage*—the mighty telescope of mind!
 If later, luckless arts that stage profane,
 The actor pleads—not guilty of the stain:
 He but the shadow flung on fashion's tide;
 Yours the high will that all its waves must guide;
 Your voice alone the great reform secures;
 His but the passing hour—the age is yours.
 In Shakespeare's halls shall dogs and bears engage?
 Where brutes are actors be a booth the stage!
 And we shall triumph yet. The cloud has hung
 Darkly above—the day shall spring—has sprung;
 The tempest has but swept, not shook the shrine;
 No lamp that genius lit has ceased to shine!
 Still lives its sanctity!”

Of course, every actor believes that some one power which he gives thru his work is the most helpful. It is purely an individual belief. The force that appeals to me is imagination. I have just read what Arnold Bennett says in a recent publication:

“There is a word, a ‘name of fear’ which rouses terror in the heart of the vast educated majority of the English-speaking race. The most valiant will fly at the mere utterance of that word. The most broad-minded will put their backs up against it. The most rash will not dare to affront it. I myself have seen it empty build-

ings that had been full and I know that it will scatter a crowd more quickly than a hose-pipe, hornets or the rumor of plague. Even to murmur it is to incur solitude probably disdain and passibly starvation as historical examples show. And that word is 'poetry.'"

In these words of Arnold Bennett's lies a great condemnation, if it be a truth.

For the genius of the theater is imagination, and thru poetry we get imagination at its highest. The dream of the theater is to encourage the reverence for the imagination, to give it to the people, to develop theirs. I claim it is the highest form in any art. It is the essence of all great creation and without it, we become dolts and savages. Imagination, Imagination, and again Imagination! This is, and should be, the war-cry of the theater. We must have a worthy stage, a worthy public, otherwise the great works of imagination and beauty will die. We must give it to the people. We must make the people feel that they want it, for it is the clarion tongue that proclaims truth, beauty, art.

In Germany, particularly, the acceptance of great imaginative works is far greater than in other countries. They seem to have a more highly trained audience—people who have come prepared by a century of development—artistically, in music, literature, and poetry. Perhaps the most significant fact that proclaims this truth is that in the most imaginative of all plays—"Hamlet,"—the Germans so lend themselves to this force that they will accept the play without the Ghost in the flesh, but simply exprest with an eerie light, and the voice of the Ghost being heard, showing that the unseen visitor is but a creation of the distorted mind of Hamlet.

I appreciate all the modern, realistic works. America has been prolific in plays dealing with their Captains of Industry—in taking the modern, sordid, truthful, photographic conditions of life, and putting them on the stage. Some of them are very fine, some of them bring very big lessons, some accomplish a great deal of good; but there lies a great danger in them. We must not over-glorify the ash-can, or the "crook-and-trusts" drama. We must remember that all these material evidences of man's domain cannot compete with the wind, the stars, the spirit, the fantasy that lie about us, and which are our highest attributes. These are the plays that sway, or should sway, the mind—the spiritual mind—of the man. I would rather see burned every manuscript in the world that treated only of the modern realistic drama, than that we should lose our heritage of the imaginative gifts that can be ours. All of the modern plays

that have been done, are not worth the last act of "*Othello*." We can't always have Shakespeare, but we can have works that help us to cultivate the imagination, that remember the graces, beauty, wit, fantasy.

We often hear about the heart-breaking experiences of the actor's life, and the actor-manager who has pinned his faith on doing difficult work: but, believe me, back of it all is a joy unspeakable for the true artist.

The privileges of my calling are many. I am rebellious against the man and woman of our profession who can, after years of work and often after achievement, remember only the unpleasant, the trying, the difficult hours—the physical and mental discomfort.

These conditions, even while they do exist, cannot take from us our privilege or power of illuminating and benefiting humanity. Why, we can give in three lines of real acting, the glow, the warmth, the impetus to set hundreds of minds aquiver with possibilities in their natures that they had not dreamed of: to drag them away from the work-a-day world, to uplift, to stimulate: perhaps to change the purpose of a life. We can reach a small boy in the gallery; take him into an ideal world; start the tiny, almost dead, glow of his imagination growing. We can make you joyous; we can make you thoughtful; we can make you forget your cares; we can send you out refreshed. That is ours as actors to give. And that is a power not lightly to be decried. That is our power in the theater. But you who form the public, you, also, have a power that is to be reckoned with. Good citizenship means all that is best for education; and you men and women, you, also, must be held responsible concerning the business and the dream of the theater. Either you go forth from your Universities asking for, and willing to accept the great imaginative gifts, or you shut the doors on us that make possible these productions. We will give you what you ask for—we of the theater. There are men and women eager to have you demand and consume what is best, but without you we are helpless.

Do you ever consider when you say, "I wonder why So-and-so doesn't do so-and-so," that it is because when you have a holiday, you pay your money, and to gratify your wish to have a good time, you cast off your mind, and let your physical sense merely enjoy the inane, inapt, "show—"show," that abominable word that has been coined in the last decade, and is used to designate anything from a "leg show" to the symbolic, exquisite "*Blue Bird*" of Maeterlinck.

And now a final word in regard to the theater in general. It

seems to me that a good deal of the future of the theater is in your hands—the public's hands—backed up by your splendid newspapers and magazines who follow it so closely and are willing to write so extensively about it. You can demand from us almost what you want; you have the power to force us to give you the best, and it is so easy for you to ignore us to pass us by, if we don't give you the best. It is also very easy for you to encourage us and help us to climb artistically and educationally, and bring the theater to the heights we want to see it stand upon. Condemn all things that are brought into the theater by people who have not the real interest of the theater at heart, beyond a desire to gain notoriety, or solely to make money.

And so that you shall not misunderstand anything that I have said in this paper, I want to say, *my text*, whenever I am preaching about the theater, is "Entertain; tag on all the art you can while you are entertaining, and eventually the best art will be accepted as entertainment."

The theater has its *mission*, and the theater has its *place*, and with your assistance, it ought to attain a very high one.

Reminiscences of Oxford

GEORGE ST. JOHN PERROTT,

Professor of Latin, University of North Dakota

IT is my ambitious purpose to attempt to take my readers to that fair city on the banks of the Isis, as the river Thames is called at Oxford,—that city of domes and spires and towers; of stately colleges and theaters and libraries; of gardens and avenues and groves, framing the venerable grey buildings, and making them look all the more solemn and imposing.

It is not my purpose to present a guide-book account of the various colleges and university buildings, but to give you, if I can, some idea of what student life at Oxford is, resembling, as it does in some measure, the life of students at our own state university, but, in many respects, being far different.

The University of Oxford is an institution for the purpose of holding examinations and conferring degrees. It provides certain lectures chiefly useful to the student in the later years of his course; but for the most part the training and education of the students are carried on by the colleges.

The colleges are endowed institutions belonging to the University, but distinct from it. Each of the twenty-two Oxford colleges possesses a splendid set of buildings in Oxford city and owns property in various parts of England from which it draws a revenue sufficient for its maintenance. The business of the colleges is to board and lodge the students and prepare them for the University examinations.

The nominal head of the University is the Chancellor, usually some distinguished nobleman. The real head is the Vice-Chancellor, elected for a period of four years from the heads of colleges. Then there are the proctors whose business is to look after the conduct of the undergraduates on the streets, and in public generally. There are also various professional lecturers and examiners appointed from the college professors.

The University Examinations are held twice a year, and are for all the students—i.e., for any student, no matter what his college, who is “in the Schools,” as the Oxford phrase goes, referring to anyone who must take examination at that particular time.

In the writer’s time there were three University Examinations necessary for a degree in arts:

1. Responsions, called "Little-Go" or "Smalls," in the familiar language of undergraduates. This examination is not supposed to be part of the University course, but a mere preliminary. It may be passed before entrance, just as our own Freshman Class may be entered by way of the State High School Examinations.

2. The First Public Examinations, or Moderations. This, in my time, was a classical and mathematical examination. Students could specialize and secure honors in either classics or mathematics, but in either case they must pass in the other subject. Now, Greek may be abandoned after Responsions, and some day, perhaps, it may be elective for Responsions.

3. The Second Public Examination, or Final Schools. In this examination, if a student aimed at honors, he might devote himself to one school or course, and there were several to choose from: Latin and Greek, Mathematics, Jurisprudence, Modern History, Theology and Natural Science. Today there are more of these Final Honor Schools, such as Modern Languages, Oriental Languages, English Language and Literature. Connected with the student's final examination is an examination in the Bible, the Greek Testament, and the Rudiments of Faith and Religion, which must be passed by every student who does not formally declare himself not a member of the English Church, in which case some equivalent subject must be taken instead. Those who are not "European British Subjects" may substitute certain sacred works in Sanscrit, Arabic, or Pali; and those who object for conscientious reasons to a study of the Bible may substitute the *Phaedo* of Plato; but the sagacious undergraduate knows that if he does this he must have no conscientious scruples against harder work.

It must be remembered that in America the instructor in each course of studies is also the examiner, whereas at Oxford the College teaches and the University examines. So, instead of conferring degrees on the basis of many separate examinations, as is done at American Universities, the result of the Oxford student's labors is gaged by two examinations, set and judged by the University.

Let us now turn our attention to the colleges. All the Oxford colleges are built around central open courts, called quadrangles. The buildings, or parts of them used as living rooms, are divided off into sets of chambers, opening on to a common staircase. Each student occupies two, or sometimes, if he can afford it, three rooms. These rooms he rents of the college. The furniture is either bought of the last occupant, at a valuation, or hired of the college.

The student takes breakfast and luncheon in his own rooms, ordering from the college kitchen anything he may require, in addition to bread and butter, which latter articles every resident student must have supplied to him by the college buttry, the consumption of which every morning affords a proof of continuous residence.

All the resident members of the college dine together in the college dining hall at six o'clock p. m. The Hall at my own college was a fine lofty room, paneled in dark oak emblazoned with the arms of pious benefactors. It was furnished with long tables for the students, and at the upper end was a cross table on a raised platform for the professors, or, as the Oxford students call them, "dons." The first don who entered would march to the high table and stand there, facing toward the body of the hall, in a solemn and imposing manner. The junior scholar present would gabble furiously thru a long Latin grace, and then we would sit down, each at the table proper to his standing in the college. Gowns must be worn in the dining hall, and dark coats were in order except in the spring term. Any student appearing in a light coat was liable to be "sconced." Any senior man could sconce such an offender—i.e., order, at the light coated man's expense, a quart of beer from the buttry. The beer was brought in in one of the massive silver tankards belonging to the college. In such cases, college tradition provided that if the sconced man could drink off the whole quart, without taking the tankard from his lips or ceasing to drink, he had the right to sconce every other man at the table. There are various offenses which may be punished in like manner, and indeed the custom of "sconcing," a penalty for breach of good manners at table, can be traced far back into the middle ages.

College classes, called lectures at Oxford, were held in the college lecture-rooms, or, if the class were not too large, in the lecturer's own rooms. The lectures in the early part of one's course were much like ordinary school recitations. In the classical lecture rooms, for instance, we were put on to translate, and if we stumbled or broke down, were often treated to the most scathing sarcasms. Lectures for third or fourth year men were lectures proper. Students were very seldom questioned, never, in the large university lectures to which all students, irrespective of college, were admitted. Some of the university professors even dispensed with roll-call, in which case, I fear, we did not all attend very regularly. If, however, we cut college lectures, we received a visit from the college porter who told us that the dean would like to speak to us.

We were also liable to be "hauled for chapels"; that is, summoned before the dean for being absent from chapel services. We were expected to keep eight chapels a week. Of these eight we were allowed to miss two. There were two chapel services a day, at 8 a. m., and 5 p. m.

We had six school days a week, but there were seldom any lectures in the afternoon. Students were generally free from 1 o'clock until dinner at 6 p. m. After this, if not disposed to study, we might go out of college, until the gates were closed at 9:15 p. m., and remain out until 12 o'clock at night without special permission. At ten minutes past nine, the big bell at Christ Church, known as "Great Tom," tolls 101 strokes, which is the signal for all the colleges to close their gates. One can get in after that time by knocking the only penalty being a small fine increasing with the lateness of the hour. But to "knock in" after midnight is fatal. Rustication for a term, or perhaps for a year, is the least one can expect.

It is supposed to be utterly impossible to escape from college bolts and bars, and walls and gates after locking up time, but most of the colleges have their secret exits and entrances, known only to undergraduates. An undergraduate of a certain college was once caught out of bounds and promised a merely nominal punishment if he would disclose by what means he had escaped. If he told, he would of course shut off this means of escape to his companions. He asked for three days to consider. This was granted. At the end of three days he appeared before the college board and said he had decided to tell. "You will find my answer," he said, "in the twenty-ninth verse of the eighteenth psalm." At this point he bowed politely to the assembled dignitaries and hurriedly left the room. The passage referred to was found to be as follows: "By the help of my God have I leaped over the wall." The writer cannot actually vouch for the authenticity of the foregoing anecdote; moreover, the quotation as given would seem to be a judicious mingling of the bible and prayer-book versions.

The most popular amusement at Oxford is boating, which in the English climate is not liable to be interfered with to any great extent by frost. Rain does not count with the enthusiastic oarsmen. Crews in training go on the river in all weathers. Still, the spring term is of course the great boating term, and the river at Oxford, on a May evening during the Eight Oar races, is an exhilarating sight. Imagine twelve or fifteen eight-oar-racing boats, each one representing a college, started at intervals of two boats' length, one

behind the other, and each, except the leader, trying to catch the boat in front; to run into it, making what is technically called a "bump." Imagine, too, a crowd of excited and vociferous students running abreast of each boat, wildly shouting to the crews to use greater efforts to win victory or avert defeat. When a bump is made the two boats participating in it get out of the way of the other boats, and next evening bumper and bumped change places, and the conquering boats have advanced a step in the direction of the coveted place known as "head of the river."

There is cricket at Oxford in the spring term, and football in the other two terms: Rugby Union, Association, Eton, Harrow, and Winchester. In the parks there would be several kinds of football games going on at once.

The space of this article will not permit a detailed list of the university and college buildings. The High Street at Oxford must be seen to be appreciated. Words fail me when I think of "the streamlike windings of that glorious street," which runs from Carfax Church to Magdalen Bridge. "The High," as Oxford men delight to call it, contains University, Queen's, and Magdalen colleges, besides that most graceful of all graceful structures, the University Church, with its memories of Cranmer, Ridley, and Latimer; of Laud, Newman, and Pusey. The tower and spire date from 1400; the chancel and nave from the succeeding century. The design of the porch was the ground of the articles in the impeachment of Laud.

It should be clearly understood that Oxford is a city of colleges, all attached to the University. Suppose Grand Forks to be an English university town, and twenty of its largest buildings to be colleges. Suppose each college to have its own faculty and its own set of students. Suppose, further, that from the most distinguished college professors a sort of committee was appointed with power to hold examinations and confer degrees and exercise general supervision over all college students when outside their own college gates. You will then get an idea of the University and colleges of Oxford; the committee alluded to representing the University.

No student can be a member of a college without being a member of the University, but it is possible to be a member of the University without being a member of a college. Such undergraduates are called Unattached, or Non-Collegiate students. They have all the privileges of the University; can enter for examinations and receive degrees, but do not belong to any college. Life at Oxford

is cheaper so, but, of course, unattached students miss much of the genial companionship and other advantages which college life affords.

The number of students in the colleges varies from 60 or 70 in the smaller to 250 or 300 in the larger colleges. Counting the unattached students there are about 3000 undergraduate members of the University.

As regards the expense of an Oxford education, it is difficult to speak precisely. One could at a college get along, with considerable economy, on \$750 a year. In my time I think the majority of men at my college spent over \$1000 a year.

To some North Dakota parents, it may seem a somewhat risky experiment that mere boys should be sent to Oxford, where they are practically their own masters in a city full of tempting stores, with everything close at hand that money can buy, or credit procure, and with their own private rooms where they can drink and gamble and turn night into day. I do not wish to imply that many behaved in this way. Mr. Corbin, author of "An American at Oxford," says that less drunkenness and dissipation exist at Oxford than at Yale or Harvard.

The chief rules of discipline which are in force in the University of Oxford are the following: Junior members of the University are required to abstain from frequenting hotels or taverns, except for reasons to be approved by the Vice-Chancellor or the Proctors. They are not allowed to keep a horse, or drive a vehicle of any kind, except with the consent of their Colleges and of the Proctors; nor to smoke in the streets; nor to engage in any game of chance; nor to take part in, or subscribe money for, horse racing or shooting matches. The punishments inflicted for breaches of these rules consist of fines; rustication, or banishment from the University for a definite period; and, finally, expulsion from the University. The discipline of a college is supplementary to that of the University. Each college has its own special code, and its own special mode of administering it; but there are certain regulations which with slight varieties of detail are common to all colleges.

The Proctors are important University officers whose duty it is to look after the conduct of the students when outside of their own college gates. They have also by royal charter the powers of an ordinary justice of the peace, and can arrest and commit to prison any resident member of the University. If a student were to break the law of the land, he would be carried before the Vice-Chancellor, or one of the Proctors, who would either deal summarily with the

case, or remit it to the ordinary courts of Law. The University officials are, however, seldom troubled with such grave offences. Special University offences, such as smoking in the streets, or being found in billiard rooms after a certain hour in the evening, are such as they chiefly have to deal with.

And now a few words concerning the University Examinations. How grim those examination buildings which we called the "Schools" used to look on examination mornings! First there was paper work—written examination—lasting from two or three days to a week. Then oral examinations, where each man was publicly examined. The victim was bidden to sit down on one side of a table, and on the other side sat three examiners. It is possible to pass a very bad quarter of an hour under such circumstances, as many undergraduates know from sad experience. The candidates are examined orally in alphabetical order. Lists are posted in the examination buildings with the names of those due to appear the following day. After the ordeal is over, the examiners consult together and sign certificates, or "testamurs," as they are called, for those who have satisfied them. Candidates always know their fate by five o'clock on the afternoon of the day on which they are orally examined. If the student be a passman, and has satisfied the examiners, he receives from the clerk of the schools a slip of blue paper declaring in Latin that he has satisfied the examiners. If he be an honorman, he receives a slip of white paper, assigning him to the first, second, third, or fourth class, according to his merits.

Degrees are conferred on certain days in each term on such of the students as have passed the requisite examinations. The Vice-Chancellor is the presiding officer on such occasions, supported by the senior and junior Proctors. These three dignitaries occupy chairs on a platform at one end of the Hall of Convocation, retaining their caps on their heads. All other male heads are uncovered. All members of the University are, of course, arrayed in full academic panoply. The students to receive the B. A. degree are presented in turn by the deans of their respective colleges in a neat Latin speech. The whole ceremony is conducted in Latin. After the names have all been called over, the two Proctors rise, solemnly march some paces from their seats, turn round, and march back again. This apparently aimless promenade was originally indulged in in order that those who objected to any one of the candidates receiving a degree might signify the same by plucking the Proctors' robes. In former times this was occasionally done by tradesmen, to obtain pay-

ment of their little bills, but nowadays the Proctors' march is uninterrupted. Objections are made before matters have gone so far.

There is no function at Oxford exactly corresponding to the Commencement observed at American schools and colleges when all the graduating students of the year receive their degrees together. The great festival of the Oxford academic year, which is held in the Sheldonian Theater, is called the Commemoration. The proceedings consist of a Latin Oration in honor of founders and benefactors; the presenting of the honorary degree of D. C. L. to strangers eminent in science, politics, etc.; the recitation of the Newdigate, or English prize poem; the Latin prize poem; and the Latin and English essays.

Some years ago Richard Harding Davis visited Oxford on purpose to study the Oxford undergraduate. He says he imprest him as the most interesting combination of shyness and audacity he ever met. His most conspicuous characteristic is his love of "ragging," or playing practical jokes. It is, says Mr. Davis, in the audacity and earnestness of these jokes that the Oxford undergraduate differs most widely from the undergraduate of America. The Oxford man enjoys mischief for mischief's sake and carries off his joking with a much more easy and audacious air. This is probably due to the class feeling which is in the atmosphere in England and which does not exist with us. The Harvard student may think he is of finer clay than the tradesmen and policemen, but he cannot bring them to think so. This is where his English contemporary has so much the advantage of him. The Oxford tradesman feels an inborn and traditional respect for the gentleman; he bows meekly to his eccentricities; he takes his chaff with smiles; he regards his impertinences as one of the privileges of the upper classes. And the Oxford man knows it and imposes on him accordingly.

Imagine the Sheldonian Theater, on the morning of the day on which honorary degrees are to be conferred on distinguished Englishmen and foreigners, filled with young girls and their chaperons in the lightest and brightest and most brilliant of summer frocks, rising tier above tier to the very roof. Moving among the crowd are the lesser authorities of the University, acting as ushers, wearing their gowns and hoods, and looking very learned and fine with their white hair and long mantles of rustling silk. Among the girls are groups of students, looking very good among the matrons and maids. The organ is playing something low and melodious,—something of Chopin's. We are waiting for the procession of dignitaries to ap-

pear. Suddenly a boy's voice breaks in with the quiet authoritative drawl of the English gentleman: "Mr. Lopes, I do not care much for Chopin myself. Can you play 'Ta-ra-ra-boom-de-ay'?" On the other side of the gallery a young man springs excitedly to his feet. "Oh no, sir, don't play that. Play 'The Old Kent Road,' I can sing that." "I have heard him sing it," a third joins in anxiously, "and I hope, sir, you will play almost anything else." This is the beginning. From then on for one hour the proceedings are absolutely at the mercy of the undergraduates. The Vice-Chancellor now enters at the head of a grand procession of beadles with gold maces followed by those who are to receive degrees, and, with a very red face and nervous manner, plunges into his Latin address, thru which he rushes breathlessly. The boys all the time keep up a running fire of comments; "Don't be shy"; "Speak louder, sir"; "That last is rather too good to be original"; "You cribbed that line." The unfortunate Vice-Chancellor blushes redder and redder, and in turning over a page hesitates at the word "ut." In an instant twenty men leaned over excitedly: "Be careful, sir," they cry in agony, "Do not forget the subjunctive." "Ah," they add with a sigh of relief, "he knew"; and to this a skeptic adds gloomily: "I don't believe he knew. Someone must have prompted him." Then another voice says reprovingly: "I trust, sir, you don't intend to take up our time much longer"—and the Vice-Chancellor drops back into his throne, the perspiration rolling off his face; folds his robes about him, and smiles delightedly at every attack on everyone else during the exercises.

I suppose, says Mr. Davis, such a scene is reproduced in no other country. It is almost impossible to believe that such a situation exists out of one of Mr. Gilbert's operas. The head of the greatest university in the world, surrounded by all the men of it and other universities, and those men highest in art, literature, and statesmanship; and each of them in turn at the mercy of a hundred boys not yet of age—literally trembling before them, and finding the honor to which they have looked forward turned into a penance and a nightmare. The undergraduates explain it partly by saying that some of the men who come to Oxford to receive degrees think they are conferring rather than receiving honor, and that it is for their especial benefit that the "ragging" is intended.

This somewhat rambling paper may, perhaps, be fittingly brought to a conclusion by a quotation from the prose works of Matthew Arnold: "Beautiful city! So venerable, so lovely, so unravaged by

the fierce intellectual life of our century, so serene! And yet, steeped in sentiment as she lies, spreading her gardens to the moonlight, or whispering from her towers the last enchantments of the Middle Age, who will deny that Oxford by her ineffable charm keeps ever calling us nearer to the true goal of all of us, to the ideal, to perfection—to beauty, in a word, which is only truth seen from another side.”

The Nature of Moral Behavior, and Its Expression in Intention and Overt Action

JOHN W. TODD,

Assistant Professor of Psychology, University of North Dakota

I MORAL BEHAVIOR

BEHAVIOR, as an ethical term, has been associated too exclusively with more or less appropriate movements of the muscular system. To behave was to act, and to act was to move the body in some manner. But the term as an ethical concept must have a broader meaning, if the agent is to be thoroly understood and his acts are to be justly interpreted.

It usually was not thought that the failure to act and to speak were as positively *responses* to our world as any of the muscular movements, and that account should be taken of them. Their common occurrence should have suggested their importance, yet men went on treating them as lapses, periods of cessation from behavior, or way stages to some dynamic expression of the individuality when the right time should come. They felt that the so-called cessations were the *cause* of the next immediate behavior. It did not occur to them that the seeming pauses were themselves periods of the most vigorous activity in which the agent was closely scrutinizing some contemplated overt action to determine how far he should allow it to publish his purposes. Only in the sense that any movement is preparatory to another which is to follow, are these so-called failures to respond preparatory to objective behavior.

What we do and what we say are behaviors, but in no more real sense than what we do not, or what we do not say. What we do and say may more fully publish us as agents, but may be more impulsive, less conscious, and consequently less expressive than the behavior that is not objectified. The overt action, whether testimony or movement, may be, so to speak, an abridged or somewhat expurgated edition of the agent's thoughts or purposes, or it may be even spurious. Nothing reveals this so well as psycho-analysis,¹ which

1. See, Inhibition (A Review), in the *Psychological Review*, 1902, p. 206; also, Mental Diagnosis by the Association Reaction Method, *ibid.*, 1909, Vol. 16, pp. 399-409; and Wundt, *Doctrine of Psychical Analysis*, *American Journal of Psychology*, 1905, pp. 16-17.

operates by means of associations to cause the subject to reveal the important residuum which he is attempting to falsify or to conceal. When the appropriate stimulus is given, these secreted things are objectified by the subject's excitement, and tardy or even long delayed responses. If the probing happens to be direct, the subject may spontaneously retract his misrepresentations and supply all he has hitherto kept back. Thus the pause in overt behavior may be an interval of hidden action.

In so far as the hidden activities are not objectified by disturbances of some of the involuntary body processes readily detected by the trained observer, they are representative in character, i.e., in terms of images, ideas, and meanings. By means of these future activities are deliberated, that is to say, acted out in advance,² and decided upon. For this reason these apparent lapses or pauses are expressions of the highest order of behavior, namely, *thinking*. We should take care, however, not to confuse with these the cases of interrupted action due to intense surprise or great fear, which roughly may be called negative behaviors. Altho, instinctively, negative behaviors are for a purpose, they nevertheless have no end assignable to terms of representative, deliberative behavior.

Thinking genetically comes from balked muscular behavior reflexly originated and consequently is at first crude and half corporal. While thus in the beginning half bound to the physical, reflective consciousness, thru modifying by an ever increasing amount the native movements that made it possible, comes finally to be free from their control, turns about and controls them. Thus, thinking becomes the behavior of behaviors, upon whose activities the only limitation is logical necessity.³

In the broadest sense, psychological ethics considers thinking as the only real behavior.⁴ This causes us to consider reflex and instinctive behaviors as only convenient names for familiar tropisms.

2. Dewey, Lectures in Psychological Ethics, Columbia University, 1910-11: "The brain is not an organ of consciousness; it is an organ of behavior. Cerebral activity is a scheme for delaying overt action, and the particular kind of cerebral action called deliberation is an arrangement for doing a thing without doing it." See also Dewey's *Studies in Logical Theory*, Vol. II, ch. 2.

3. For example logical necessity compels us to think iron is heavy. We have no liberty to think as we please about the proposition.

4. We should not confuse thinking as active behavior with knowing in the sense of retention, or the ability to recall. Knowing, in the latter sense, does not exist. The only true evidence of our knowing something is our thinking it. Aristotle, *Nicomachean Ethics*, Bk. VII, Ch. X, p. 200, speaks as follows of the ethical aspect of knowledge: "A man is not prudent [moral] from merely knowing, but from also being disposed to act." In merely knowing, "a man resembles a state that passes all the enactments which it ought, and has good laws, but uses none of them."

We shall have to treat automatic behavior that has come about by habitualizing conscious action⁵ altho reflex in nature, as still belonging to the highest type of behavior, for it vicariously functions for the consciousness it has released. The true significance of this vicarious behavior will be brought out in a later part of the present division of this paper.

All behavior has a community purpose, or, at least, a community result. Our physical and mental behavior cause us to act in both physical and mental communities, our exchange of movements and symbols constituting the former, and our exchange of thoughts, the latter. The media of exchange in the mental community are speech and customs,⁶ and just as mental behavior is the highest type of behavior, so the mental community is virtually the only community. All activity in the physical community that is purposive is for the furtherance of some activity going on in the mental community.

It is clear, then, that there can be no distinct separation of the agent and his action; he is not so much the author of conduct as he is conduct, and, therefore, is always as good or bad as the thing he does. This view has been stated as follows by Dewey: "Defining conduct from the standpoint of the action, which includes both the agent and his scene of action, we see that the conduct required truly to express an agent is, at the same time, the conduct required to maintain the situation in which he is placed, while, conversely, the conduct that truly meets the situation is that which furthers the agent."⁷

In the foregoing discussion it has been made clear that morality is to be identified with some sort of activity or behavior, mental or physical according to the point of view of the one who passes moral judgment. That is to say, the agent is qualified to pass judgment upon both the mental and physical phases of his own activity, while his observer's opinion can only be inferential upon the physical, or visible, aspect of this activity.

The broadest classification of behavior falls under two heads, ethical and non-ethical. The term ethical includes moral and unmoral (immoral) behavior, while the term non-ethical covers all non-moral behavior, i.e., all behavior impartial or indifferent in so far as ethical judgment is concerned. In popular terms, an ethical act is one that is either right or wrong, whereas, a non-ethical act

5. See Kirkpatrick, *Genetic Psychology*, pp. 111-139.

6. Wundt, *Outlines of Psychology*, §21, p. 337.

7. *A Study of Ethics—A Syllabus*, p. 11. See also, *The Monist*, Vol. VIII, p. 321.

is one that is neither right nor wrong. In this sense alms-giving is an ethical act, while wearing a brown hat instead of a black one is non-ethical. Unlearned reflex acts are non-ethical, as for example, starting at sudden sounds, or jerking the hand from a hot surface. It is however, erroneous, as was said, to include in this category certain acquired reflexes, as for example, automatic responses resulting from practise or habit.

The attempt, however, to define ethical action as behavior that is either right or wrong is merely defining it in terms of itself. What act is right?⁸ What act is wrong? Why is the reflex act neither right nor wrong? Who is to say what is right and what is wrong?

In the first place, no act or object is ever right or wrong *in itself*, but is right or wrong for something. Society has always tried to define the terms right and wrong, and the history of ethical standards shows its constantly changing conception of them. At no time was their meaning specifically fixed, yet the members of society went on acting because of a progressive necessity, courageously awaiting either the approval or condemnation of the group. Parts of the social group have always attacked a certain tenet or standard that lagged one stage behind human practises. Some individual or class of individuals has always possessed the courage to face the anathemas and execrations of the literal standardists in the hope of realizing a better right or less unjust wrong.⁹

Granting that an ethical act is either right or wrong *for something*, it is not really defined until the nature of this is known. The Hedonist will say that anything that is good for the *happiness* of the agent and of others is right, and whatever is not thus good is wrong. The Energist will say that any conscious act that tends to develop the physical, moral, and spiritual nature of the agent and of others is right. According to the latter view anything is good that tends to develop *the whole life*. "Our moral judgment

8. Martineau in his *Types of Ethical Theory*, Vol. 2, p. 270, has attempted to answer this question: "Every action is right which in the presence of a lower principle, follows a higher; every action is wrong which in the presence of a higher principle, follows a lower."

9. Every student of ethics is doubtless familiar with the case of Spinoza who was excommunicated by his group for uttering certain opinions contrary to the belief of the group, and with the following extract from Jacobi's vigorous letter to Fichte: "Yes, I am the atheist who in defiance of the will that wills nothing, will lie, as Desdemona dying lied; will lie and deceive, as Pylades pretending to Orestes; will murder like Timoleon, break law and oath like Epaminondas and John DeWitt, commit suicide as Otho, and rob the temple as David; yes, pluck ears on the Sabbath, and that too because I am hungry, and the law was made for man and not man for the law."

must condemn instincts and modes of conduct which are pernicious to the social vitality and must approve the opposite . . . "10

From this discussion it is clear that the terms right and wrong are social terms. The lone inhabitant of a world could not be an ethical agent, for his non-social state would render it impossible for him either to do right or to do wrong. If he attempted to steal, there would be no one to steal from; if he attempted to lie, there would be no one to lie to. No doubt his ethical disposition and consciousness, for that matter, would be as indefinable as those of the earthworm.¹¹ If any man is ever truly conscious he must be conscious of others i.e., he must be conscious of his *relations* to others,¹² and in that very moment, he becomes conscious of himself. Fite does not accept the theory of James¹³ and others that we genetically know foreign objects and other persons before we know ourselves. "There can be no consciousness which is not also self-consciousness in its own degree."¹⁴

To be conscious of other objects or persons is to be conscious of ourselves as conscious of them. In its early history consciousness merely relates to the relationships of contiguity or proximity, but later it is liberated, knows meanings, and foresees possible relationships between the self and others, and acts so as to promote or defeat them. In this sense, *ethical* activity is for something before it, foreseen and intended. Hence, any act is ethically right that brings about foreseen and intended results, i.e., relationships that further the general welfare in a situation affording the alternative possibility of working ill to some one.

According to this test falsehood is wrong and truth-telling is right; extortion is wrong and a reasonable profit is right. To have moral value, foreseen and intended actions should tend to further the general welfare, that is, they should be useful. The act of driving a horse-shoe nail, while conceded to be useful, is not commonly called ethical, yet if the mere alternative of not driving the nail causes the horse, the rider, and a battle to be lost, in one grand sequence, the act is open to the most vigorous moral consideration. The exercise of any right or power that is highly useful continually raises ethical questions, not because the ethical interests break in from the

10. Thilly, Introduction to Ethics, p. 197.

11. For a discussion of the evolution of consciousness and ethics from social relationships see, Dewey and Tufts, Ethics, Ch. III, p. 37; also, Ch. IX, p. 171.

12. See, Fite, Individualism, §63, p. 98: The Conception of Social Consciousness.

13. Psychology, Vol. I, p. 291 ff.

14. Fite, op. cit., p. 71.

outside, but because there is no fast difference between the useful and the moral. Nothing useless ever is called moral.

Only a small amount of reflection is necessary to convince us that moral behavior is the last and finest stage of human behavior. It is a point of high development not yet reached by the infant or imbecile. Their responses are chiefly organic and reflex, which, as we have seen, are non-ethical. Being unstudied acts, these reflexes are, as far as consciousness is concerned, for their own sakes, yet they operate in a manner that is years beyond the understanding of their possessor. Because of them he is to learn the world and the difference between right and wrong. The history of the development of ethical behavior is very interesting, and adequately discussed would require more space than I have at my disposal.¹⁵ Briefly stated, however, such a study reveals in the first human behavior, racial and individual, no inkling of ethical action consciously or voluntarily practiced. Enlightenment has not yet dawned upon the self-sufficient responses.

Thus every human individual is endowed with the power to respond to the world with some propriety even before consciousness has dawned. These activities are so ordered as to enable the organism to act to increase the number of pleasant stimuli and to decrease the number of unpleasant ones, which functions are more efficiently taken up by consciousness when it appears. In so far as these less than conscious activities smoothly meet the demands of various situations, they remove the situations, the organism falls into quiescence, and his reflex nature is conserved.

The result is much different, however, if the unlearned responses fail to adjust the organism to the situation. In this case there is a clash and a struggle, owing to the fact that the reflex that fails¹⁶ thereby arouses a feeling tone that adds to the intensity of the stimulus that is affecting the organism. The result of this interruption and increased stimulus is a stronger overflow of nervous energy in all directions, and incidentally into the cortical centers. Thus, consciousness comes in. The native responses will thereafter be controlled by these centers in a more or less perfect manner. To these will be added centrally initiated activities called voluntary acts some of which will be useful and will have associated with them the approbation or disapprobation of other agents, and will

15. See, Spencer, *Data of Ethics*, Chs. IV and VII; Sidgwick, *Methods of Ethics* Bk. II, Ch. VI; Fite, *An Introductory Study of Ethics*, Ch. IV, and Dewey and Tufts, *Ethics, The Moral as Growth*, pp. 8-13.

16. Fite, *The Place of Pleasure and Pain in the Functional Psychology*, *Psychological Review*, 1903.

be called right or wrong; others will be called skillful, expedient, or wise, according to their natures. It should be noted that the last named acts while in themselves non-ethical, are usually accessory to some larger moral or unmoral act.

As reasonable as this account of the growth from the impartial into the moral may seem,¹⁷ it nevertheless has its disbelievers. Mukerji¹⁸ has recently opposed this genetic conception of morality. He does not see how a creature of blind impulses, by various happy and sad experiences therewith, ever can be brought into the full light of reason and morality. To him it is beyond comprehension how anything but an inborn intuitive moral knowledge can enable us to judge moral consequences. With Martineau¹⁹ he says: "From the un-moral to the moral there is no road."²⁰

Mukerji says that judging acts in any manner as opposed to 'springs' "commits" us to frank empiricism in morals, that is to say, to the evolution of morality from non-morality. Now, by stating that we are "committed" to evolutionary moral theory because we hold a certain opinion, Mukerji seems to advise that we can escape this fact by assuming a different attitude toward it. But, is the evolutionary account of morals of such a nature that we may accept it or leave it alone, even as we may choose? It seems not, for it is based upon facts variously obtained and carefully reported. These empirical facts alone "commit" us to the evolutionary conception of morality.

We have shown above that morality enters activity with volition and foresight.²¹ Hence, the first performance of a moral act is voluntary. But the repetition of the act a number of times causes it to lose its voluntary nature, i.e., it becomes automatic. This automatic act clearly cannot be thrown into the non-moral class, for, as was seen, it even out-ranks the voluntary act which it once was. As a voluntary act it was effortful, accompanied by much consciousness, and wasteful; now it is accompanied by a minimal consciousness, is direct, and economical. That is to say, it is a character act²² long ago approved, and impressed with the moral stamp.

17. Compare, Dewey and Tufts, *Ethics, Morality of Acts*, p. 261, and *Criteria of the Moral*, *ibid.*, pp. 5-13.

18. Martineau on the Object and Mode of Moral Judgment, *The International Journal of Ethics*, October, 1913, Vol. XXIV, pp. 54-69.

19. *Types of Ethical Theory*, Springs of Action, Part II, Bk. I, Ch. VI.

20. Undoubtedly 'non-moral' is meant here. The passage from the un-moral to the moral is a question different from the one here under discussion.

21. See, Aristotle, *Nichomachean Ethics*, Browne's Tr., Bk. II, Ch. IV, p. 40, and Dewey and Tufts, *Ethics*, p. 12.

22. Compare, Aristotle, *op. cit.*, and Dewey and Tufts, *op. cit.*, pp. 13; 210.

The place of the automatic moral act in the ethical life of the agent is more important than the voluntarily moral act. Who is the more to be praised, the man who performs a moral act with effort, or the one who automatically does the same thing? The man of moral effort, gnashing his teeth, says "I will not!" while some other force of thought or of desire says, "I will!" But the other man passes by the same temptation, probably no longer conscious of the possibility, there present, of doing wrong. Long ago he fought the same struggle the man of moral effort is now fighting, and in so far as that is concerned lives now on a higher level than he did at that time.

We never can be sure whether the man who is engaging in a moral struggle will yield or triumph. The fact that he is struggling signifies that his character in a given direction is unformed. While we have praise for the man who is struggling to do right, we have more praise for him who does not have to struggle to do right. The man who daily grapples with a bad impulse and overcomes it, is less to be praised than he who automatically performs the right act. The addictant has character in a certain direction; there is no doubt about what he will do, but we cannot predict with certainty the activities of the moral struggler: the best we can do is to hope he will triumph.

Bringing together the features of moral behavior as discust above, we find that, in origin, it comes from the impartial, inherited responses of the human organism, and as an operating factor in the life of the organism it begins with the foreseeing consciousness. Because of the native impulses and desires that may be inclined contrary to the good foreseen, its action is at first deliberative and full of effort, but, the best, the perfected moral behavior, is effortless and spontaneous, taking place usually without the consciousness either of its moral nature or un-moral alternative. If, however, its agent does pause to deliberate before acting, it is only *to see* the right; never *to do* it.

Who can judge the murderer's consciousness? Who knows the honest man's peace of mind? At least, neither the confirmed criminal nor the confirmed honest man. After either of these attitudes is of long standing it becomes habitual, is simplified, loses its naïvité, falls into commonplace, and as such, is not often the subject of reflection. "Only the man becoming good, recognizes evil as evil."

II INTENTION AS INCLUDING MOTIVE

The mental antecedents of action are commonly called motives

and intentions, and are the subjective side of the action process. The effects, or results, of the action, as the expression of the motives and intentions, are the objective phase of the process.

In popular terms, motives and intentions have reference to the actuating purposes of a movement and as such apply only to voluntary movements. But our discussion of the place of automatic behavior in ethics makes it clear that such perfected activities, functioning now with a minimum of consciousness, implicitly possess the motives and intentions that operated when they were being laid by the consciousness which they have dismissed.

The meanings of the terms themselves are variously defined.²³ Motive is commonly used to mean any conscious element considered as entering into the determination of a volition. Mackenzie²⁴ defines motive as "that which impels or induces us to act in a particular way." Sidgwick²⁵ entertains a view practically the same as Mackenzie. Green²⁶ states that a motive is the idea of an end which a self-conscious subject presents to himself, and which he strives and tends to realize. This, he says, distinguishes the world of morality from the world of natural events. Green identifies the motive of every voluntary act with some desire for personal good on the part of the agent. Esau's selling his birthright was the outcome of his personal condition and a certain kind of character. Green says, further, that the motive is not necessarily a forerunner of the act—it is the act on its inner side.

Paulsen²⁷, holding to the view that moral judgment is not concerned with acts and modes of conduct, but with the *disposition* of the agent, states that any act is good when its motive is good, that is, when it springs from a sense of duty, no matter what the effects may be. Often, however, the motive is undiscoverable save by means of the "acts and modes of conduct."

Wundt²⁸ gives a genetic account of the motive. According to his view, volitions grow out of those emotions which lead to some pantomimetic movement,²⁹ at first entirely involuntary. These pantomimetic movements are modified by their sufficiency or failure, and prepare the way for the voluntary act.

23. For a general ethical interpretation of the terms, see, Döring, *The Motive to Moral Conduct*, 1890; Vallier, *De L'Intention Morale*, 1883; and, Giddings, *The Ethical Motive*, *International Journal of Ethics*, Vol. VIII, 1898.

24. *A Manual of Ethics*, 1901, pp. 59ff.

25. *Methods of Ethics*, Ch. XII.

26. *Prolegomena to Ethics*, p. 104.

27. *A System of Ethics*, p. 227 ff.

28. *Outlines of Psychology*, 3 Ed., p. 203 ff.

29. Compare Darwin, *Expression of Emotions in Man and Animals*, 1886.

The earliest voluntary acts are preceded by ideas and emotions which end in more or less expressive bodily movements that are in themselves insufficient to remove the emotional condition that initiated them. This failure stimulates a new attempt which removes the emotion. As Wundt says, motive is a name for the most important ideational and affective processes that prepare for the act.³⁰

Intention, while not always clearly set apart from motive in discussions of ethical problems, is usually held to have reference to the purpose in view in an action, plus the consequences of the action, in so far as they are foreseen to be certain or probable. Ethics does not hold the agent responsible for unforeseen or unnatural consequences. The law, however, imputes a purpose or intention for every act, without regard to its actual existence, as is contained in the common legal phrase, "A man acts at his own risk." If loss or injury follows from his act, he is liable, altho it is neither intended by him nor due to his negligence.

Sidgwick³¹ holds that results that are merely incidental with the directly willed act, are intentional if foreseen, and that, consequently, the intention of an act may be judged wrong while the motive is recognized as right. Our later interpretation of the relationships of intention and motive will amply demonstrate the falsity of such a point of view.

Bentham³² offers us a simultaneous definition of motive and intention. According to his view, the content of intention is the whole contemplated operation of the act, both *for which* and *in spite of which* it is performed. The motive is that part of the whole act comprised of those things *for which* the act is performed. The thief and the trader both act for the sake of personal gain, and in so far are equally respectable. Thus, according to Bentham, there can be no such thing as a bad motive.

The ethical nature of the act, then, lies in the residuary part of the intention, namely, in those things *in spite of which* the act was performed: the privation and injury of others. Hence the thief is an unmoral agent because he acts for personal gain, in spite of these things, whereas, the honest tradesman acts with due respect to the direct relation between injury to others and personal gain.

Bentham's conception of motive as those things *for which* an act

30. Op. cit., p. 206.

31. Loc. cit.

32. For a discussion of Bentham's views, see his *Morals and Legislation*, XII, §2, and Martineau, *The Types of Ethical Theory*, Vol. II, p. 270.

is done, when examined broadly will be found to comprise also those things *in spite of which* a thing is done. When the thief acts for personal gain, he acts also for the injury of others. If he is not a kleptomaniac, and if he is a conscious thief, the injury to others is as clearly foreseen as the opportunity for personal gain, and in acting for the personal gain, he acts for the other also. His motive of personal gain, therefore, is of a kind very much different from that of the honest tradesman. In both cases the things so-called "in spite of which" had no existence whatever save as they were a part of the things "for which" the act was performed.

It is true, then, as Bentham said,³³ that the term intention comprises the whole contemplated operation of the act, but it is not intelligible how the motive, the moving force,³⁴ can be less than the intention. They always must amount to the same. Any attempt to differentiate one from the other brings confusion.

Focusing this conception upon the definitions of motive given above, we see that "any conscious element considered as entering into the determination of a volition" can be no less than the given intention in that direction; that the intention can be no less than "that which impels or induces us to act," and no less than the "idea of an end which a self-conscious subject presents to himself and strives . . . to realize."

Dewey clearly brings out this identical nature of motive and intention. Intention, he says, is what the agent *means* to do.³⁵ The entire action process is pointed to by the terms intention and motive, and in the cases where motives have no moral quality, intentions have none; the two are morally on the same level. Innocent activity is converted into the responsible by the intrusion of foresight and simultaneously therewith enter purpose and intention. Former innocent motives are thereafter responsible in their nature.³⁶

III. THE MORAL VALUES OF INTENTION ACTION

The agent's view of his act is inner and intimate, whereas the observer's view of the same act is outer and only inferential. The agent designs only to facilitate the inner thought processes by his voluntary acts, and acts overtly only when images and ideas fail to run on to a satisfactory conclusion.

33. *Loc. cit.*

34. See Höffding's conception of motive as the power determining the will, *Outlines of Psychology*, p. 345f.

35. *A Study of Ethics—A Syllabus*, pp. 26-31.

36. See Stocks' criticism of this view, *Mind*, N. S., 77, Jan. 1911.

The possible fallacy in the observer's interpretation of the agent's mind rests in his attempt to interpret the residuum of the intention that was not made overt in the act observed, either because it was not transferable into action, was inhibited, or because it produced unforeseen results. In so far as he is not acting automatically, as by long practised habit, the agent knows the full meaning of his acts, but these acts may be, as far as the observer is concerned, much in the dark, and may so remain until the agent supplies by verbal explanation or otherwise what was not overt in the action.

When the observer calls upon the agent to explain his acts he is merely seeking for the undiscovered residuum which he suspects the agent to have suppressed or at least to be in possession of. If the observer does not thus call upon the agent to contribute the data to fill out the gaps in the action process, he himself may attempt to do this, but can employ only the method of mediate inference. That is to say, he infers from certain movements, certain intentions, or purposes. He infers from certain periods of quiescence certain inhibitions of movement. He infers from facial expression, words used, and tone of voice, certain meanings and feelings not actually expressed in them.

Thus the agent acts at his peril. His motives are interpreted, and his character is judged, on the basis of his overt actions, which so imperfectly declare and publish his real intentions. But in so far as he is a conscious, enlightened agent, he knows his real intentions, and in so far as the observer is unprejudiced, he will interpret these on the basis of his own under the same circumstances.

When an agent is seen to give a beggar alms, it is doubtless correct to infer that he intends the beggar's good. If the observer is acquainted with the agent he may correctly interpret his motives, but if the agent is a stranger, his judgment may be tentative, as unsettled among the possibilities that the giving was the agent's personal intention or inclination, that it was socially motivated, or even physically enforced. It is likely safe to say that the common motive for alms-giving is the desire to dismiss the beggar and a feeling of pity, more or less intelligent. Such giving perpetuates the beggar and is not in the highest sense intentional or ethical.

We are now prepared to see that the whole action process must include the intention and the action, the latter term meaning both the act and its effects or results. In which of these does the goodness or badness of conduct reside? As we have seen, the answer

to this question expresses a diversity of opinions. Bentham says that intentions are bad only on account of their effects; Mill, that these have nothing to do with the morality of an act, and Kant, that our wills are not good because of the thing they will, the result or aim, but are good in themselves.

Reduced to its simple reality, our moral judgment never condemns an agent because of the failure of an intention that was good, provided he used the best enlightenment at his command, and we are never inclined to praise him for the good results of an unworthy aim.

According to Mill³⁷ the morality of an agent depends entirely upon the intention, that is, upon what he wills to do. If this will fails the agent is morally blameless, and good results do not alter the morality of the agent.

But we cannot allow the mere intention to justify the deed, for the sole admonition of ethics then would be: "Mean to do right." The whole truth is that the deed is justified in part by the intention, and in part by the changes it brings about. Now, in the broadest sense, as we saw earlier in this paper, intention means not only what the agent wills to do but includes the action and its results. In the strictest sense, intention that does not tend to break over into overt action, is not intention: that is, subjective intention is unprojected action; the overt act is the intention rendered visible.

Suppose the following situations. A robber, A, waits behind a bush in a desolate place expecting B to pass that way. His intention as he consciously knows it is to murder B and take his money. But fortunately B does not appear. In another locality, it is possible that another robber, C, under similar circumstances awaits D, his intended victim. In the latter case, however, D came by and was shot dead. Which of these two men was the murderer?

Plainly, the circumstances under which C brought about the death of D stamp him as a murderer, but what is to be said of the case of A? How much less a murderer is he than C? That he is not legally a murderer is no choice of his own.

There is no doubt whatever that A and B were on a par as far as intended murder was concerned. If there is any moral difference between them, it must be due to the fact that C's victim came along and A's did not. If as Mill has said, the morality of an act resides in what the agent wills to do, then both A and C are murderers.

37. Utilitarianism, p. 27.

Nevertheless, it is difficult to see that C is not worse than A, for, while he may be at heart on a par with him, yet he caused permanent injury and much sorrow to many people, of which things A is now innocent. It is appalling to reflect how far the results of C's murder of D will extend. None of these things are actually chargeable to A, and yet he meant them, he acted for them, and would have accomplished them, if he had had the opportunity.

The sorrows, financial losses to his family and state, and other results of the murder of D, are not of themselves ethical, but as they have a place in life, are goods. It is not their existence that is ethically bad, but it is their intending agent that is bad, because these things he had brought about do not make for the general welfare.

We shall have to conclude, then, that there is no moral difference between A and C. A meant no less than C, but chance brought him less. C meant no more than A, yet chance brought him all he meant.

It is apparent that the seeming moral worth of the overt act is merely imputed. One could speak of it figuratively by saying that its moral value is *reflected* from the active value resident in the intention. When the intention before an act has no ethical value, the overt act, or result, has none, not excepting the cases of intended or unintended good or evil results of executed intention. Under the circumstances these would be simple goods.

The best moral agent is he who, in a new moral situation, premeditates the most carefully before acting, and who qualifies himself to act his part in the social group. Knowing that he is morally and legally responsible for all the intended or unintended results of his acts, he moves circumspectly, and the fact of highest importance is, that when his character is the most surely moral, the premeditation and circumspection are no longer deliberative acts but are habitual character responses.

Book Reviews

THE NEW AMERICAN DRAMA: RICHARD BURTON, Professor of English Literature, University of Minnesota. Thomas Y. Crowell Company, New York, 1913. VIII + 277 pp. Price, \$1.25 net.

The New American Drama is the courageous title of a new book by Doctor Richard Burton. It is more than a mere chronicle of playmakers and their plays; it is a thoughtful interpretation of present-day dramatic tendencies. And in our confused theatrical times—with much that is giddy-paced, and much that is sincere, if sombre and even ugly—it is refreshing to find an author with so promising an outlook. Not ignoring the defects of the dramatist, of the manager, of the actor, of the theater-goer of today, Dr. Burton insists that the “unfailing lure” of the theater, with its “eternal quest of Romance,” is pointing to better and better things—perhaps, to things that have lasting value.

He indicates that, for all the obvious drawbacks of ignorance, prejudice, greed, there is today a more thoughtful interest in this irresistible institution of the people than ever before. Evidence is cited in the building among us of various civic and private theaters, calculated to conserve and promote intelligent taste; in the wide activities of such popular organizations as the Drama League of America, designed to encourage right discrimination in playgoing, in play-acting, in play-reading; and also in the recognition by our universities and schools (thru study-courses in the history of the drama, and thru the laboratory practice in acting and composition offered by flourishing dramatic clubs), of the deep educational values of dramatic art in cultivating the imagination, in developing active literary taste, in forming emotional energy into sound character.

A brief survey of the three successive stages of American dramatic writing—neglect, imitation, independence—leads to a consideration of our contemporary drama under the suggestive captions: *Truth, Technic, Romance, Poetry, Humor and the Social Note, Fiction and The Drama and Idea in Drama.*

In the chapter called *Truth* is shown the rise of independent thinking in such dramatists as Bronson Howard, William Gillette, Augustus Thomas, Clyde Fitch, Charles Klein and others, with a resultant native reality now on our stage, based on careful observation

of actual American conditions and types. Under *Technic* is a sane discussion of the necessity of re-defining the word "literary" as applied to modern drama, to include not only such richly rhetorical style as that of Sophocles and Shakespeare, but also the close-knit structure of the Ibsenic play of plain but well-nigh perfect prose.

That the unceasing search for Wonder and Beauty is not neglected by the new drama, is shown in the chapters *Romance* and *Poetry*. In the latter the author speaks out his patriotic conviction that our native stage will give us, in due time, an American dramatic literature uniting our deed and our dream into a vital poetic drama adequately American. The exposition of *Humor and the Social Note* calls attention to the significance of the work of such men as Ade, Tarkington, and Cohan, in that their gentle stage-satire of American life is really an unmasking of various social pretensions in our midst; in our serious social drama too is the same democratic note clearly sounded. The relation between the favorite story-forms, the novel and the play, is clearly set forth in the chapter *Fiction and the Drama*. Then follows a discussion of *Idea in Drama*, to show the deep sincerity of the best drama of today which taboos mere spineless amusement and insists upon drama being regarded as a thoughtful interpretation of human life—or in John Galsworthy's telling adjectives, an art that is always "human, humane, humanitarian."

In conclusion it would seem that the evidence gathered entirely warrants the optimistic prospect of the author. In looking steadily at the best in our contemporary drama, in insisting upon the educational significance of the institution of the theater and the profession of the actor, in promising new beauty for the drama of tomorrow, he has here effected a much needed service.

FREDERICK HENRY KOCH

Department of English,
University of North Dakota

AMERICAN LITERATURE: WILLIAM J. LONG. Ginn and Company,
Boston, 1913. XXI + 481 pp.

The book is attractive in appearance as to binding, typography, and illustrations. The warm tones of the frontispiece, Poe's Cottage at Fordham, suggest the warm human interests with which the work is permeated. The rest of the illustrations, tho in black and white, are well chosen for their suggestiveness and well calculated to bring the authors and their times vividly to mind.

The arrangement of the book is excellent. Each of its five chapters treats of a period in American Literature. Each period is opened by an historical sketch, which gives not only the background for the writings of this period, but throws light on many of its characteristics. This historical sketch is followed by the major writers in the various fields of literature, and these in turn by the minor writers. At the close of each period is a summary of the period with selections for reading, a bibliography, questions, and topics for research and for essays. So helpful in its suggestiveness is this last division of each period that it forms one of the best features of the book. In a marked degree the author has succeeded in his attempt "to make the work national in its scope and to emphasize the men and the books that reflect the national traditions."

The literary style of the book will tend to make the study of American literature "a joy and not a task." The historical sketches are more than mere skeletons, they give the atmosphere and spirit of the times. The discussions of the authors are clear and sane, and such as to give the reader a sense of companionship with men who have lived, and the criticisms of their works are fairminded and scholarly. Not only as a text book, however, is this new American Literature valuable; but as a book for private study or reference, it would be an addition to any library. This double success of the book is due largely to the author's position in regard to all literature. "My conviction is," he says, "that the study of literature is not a matter of intellectual achievement, but rather of discovery and appreciation and delight,—discovery of the abiding interests of humanity, appreciation of the ideals that are as old and as new as the sunrise, and delight in truth and beauty as seen from another's viewpoint and colored by his genius or expression."

ELLA L. FULTON

Department of English,
University of North Dakota

A GUIDE TO THE BEST FICTION IN ENGLISH: ERNEST A. BAKER.
New Edition, enlarged and thoroughly revised. The Macmillan
Company, New York, 1913. XII + 813 pp. Price, \$6.00.

The novel is undoubtedly the most popular modern form of literature; it is moreover in a peculiar way a product of modern life. The truth of both these statements is forcibly impressed upon any one who carefully turns the pages of Dr. Baker's "Guide." Here are

grouped together the titles, in most cases accompanied by a brief digest of the contents, of all the important novels that have ever appeared in the English language, both those originally written in English and those translated into English from other tongues. The digests are brief but well done. For example, under "The Vicar of Wakefield," 1766, one finds:

"The Vicar is a lovable mixture of virtue and foible, shrewdness and simplicity, unselfishness and vanity; a blameless and pathetic figure, who is tried like Job by undeserved misfortune. He and his family, a group of simple, rustic characters, drawn with delicate touches of eccentricity, make an idyllic picture of affectionate family concord—a picture tinged with regretful longing that often breaks out into poetry. The idyll is rudely disturbed by the villainy of a seducer; trouble comes thick and fast, but after sounding the depths of affliction all are restored to happiness and prosperity in the end. The Vicar was drawn from Goldsmith's father, and doubtless some of the other characters were sketched from old acquaintances. Goldsmith's style is the perfection of classical English." Then follows a list of twenty editions in which the work may be obtained.

As this indicates, the Guide may be of great value, first, in securing a complete list of the works of any novelist; second, in getting a general notion of what each novel is about; third, in ascertaining the various editions available with the price of each. In all these respects the information seems complete and accurate. In regard to foreign novelists, the lists are by no means so satisfactory as are those of English and American authors, the tabulation including, with a few exceptions, only those novels of which English translations are procurable. Yet in thus limiting the scope of the work the author acted wisely. To have extended it would have made his bulky volume a work of very inconvenient size, would have entailed a vast amount of extra labor, would have greatly increased the cost of the work, and would have added little to its value. The special student who is interested in the work of foreign writers so obscure as to have escaped the notice of translators can easily make use of other helps to find the information he desires.

One of the most valuable features of the work is its "Index to Authors, Titles, Subjects, etc.," an index covering 167 pages, three columns to the page. Here is indexed not only every author and every title mentioned in the book, but a vast number of interesting subjects. For example, under *American Revolution* are listed something over thirty novels dealing with that period. Under *Detective*

Stories about the same number of titles or authors are mentioned. Other suggestive headings are *Divorce, Egypt, Euphuism, Facetiae, Financiers, Modern France, Ghost Stories, American Indians, Marriage and its Problems, Ministers, Naturalism, etc., etc.* By the use of this index, it becomes an easy task to find the writers and the books treating of any subject of general interest.

But perhaps the most suggestive idea set forth in the "Guide" is one which was not prominent in the purpose of the author and only incidental to his work. The book suggests with almost startling force the history of the novel as a distinct literary form. Dr. Baker has found that prior to the sixteenth century only nine books which by any stretching of terms can be called novels appeared in the English tongue. During the sixteenth century there were twenty-four authors who wrote fifty-three books, few of which, however, could strictly be called novels. In the seventeenth century, the showing is even less. There were seventeen writers who might be called novelists, (including Lord Bacon, as author of "The New Atlantis," and John Bunyan, as author of "Pilgrim's Progress"), and to their credit twenty-nine titles may be assigned. It is easily seen, however, that the modern novel, as we know it, was undreamed of. In the eighteenth century there is, of course, a change. The author makes a division in the middle of the century, listing in the first half nine authors, including such well-known names as Defoe, Richardson, and Fielding, and finding thirty-four titles to their credit. In the second half of the century there are thirty authors and about fifty works. As a whole, the eighteenth century shows an increase of about two hundred per cent over the seventeenth.

It was in the nineteenth century, however, that the novel came to its own. In the first quarter (1800-1825) more novels appeared than had appeared during the entire eighteenth century. To this period Dr. Baker devotes twelve pages, mentioning twenty-six writers and ninety-three novels. In the second quarter of the century, the production more than doubled that of the first quarter. The third quarter produced a still greater number, while in the last quarter the production was over twice as great as in the third quarter. Yet from the number of pages required (228 as against 159) it would appear that more novels have been produced by writers still living than were written by all preceding writers put together. Such is the vogue of this literary form at the present time.

What the figures just given show to be the case in regard to English writers is even truer of American. Only two American novels

are assigned to the eighteenth century. To the first half of the nineteenth are assigned sixty. Estimating by the number of pages required for their enumeration, six times as much fiction was produced by writers of the second half of the last century as was produced by those of the first half, while present day writers have written about twice as much as those flourishing between 1850 and 1900.

With such a tremendous output of fiction, it is no wonder that we need a "Guide" to give us information. Predigested breakfast food of this sort can, of course, never take the place of the works themselves; but the busy student desiring ready information about an author or a period or the fictional treatment of any special theme will have abundant occasion to thank Dr. Baker for his compendious and careful work.

VERNON P. SQUIRES

Department of English,
University of North Dakota

THE OLIVE TREE: E. LEIGH MUDGE. The Methodist Book Concern, Cincinnati and New York, 1913. 64 pp. Price, 50c.

Mr. Mudge is a graduate student in the University of North Dakota, and this little book of poems is his first serious entrance into the field of literature. One finds here no attempt at subtle psychological analysis, nor is there, seemingly, any effort to hide the meaning in involved expressions or in farfetched allusions. To read with pleasure and profit one does not need to be in a studious mood nor to have all his reference books at hand. Still, the writer is not dealing with childish thoughts nor using the vocabulary of babes. He discusses some of the eternal problems of life, touches some of the deep-lying springs of thought and feeling and action, but in it all speaks simply, clearly, and helpfully.

The poems of "The Olive Tree" are arranged in five groups under appropriate captions that are typical of the olive tree and its various contributions. Under "The Olive Branch" is found a group that speaks to the mind serious, thoughtful, and hopeful. "The Shade of the Olive Tree" gives several messages of comfort and faith. "The Little Gray Leaves" form a group not heavily weighted but pleasing and suggestively restful. Group four, "The Sturdy Trunk of the Olive Tree" gives us poems both sturdy in thought and uncompromising in spirit of right and duty. The last collection, merely "Olives," in lighter vein, are pleasing and entertaining.

All in all, Mr. Mudge, with his deep religious faith, his fine optimism, his high idealism and his appreciation of nature, has written well and to good purpose. His little group of poems will prove restful, comforting, and instructive to many readers who would never be drawn toward the more labored and involved.

A. J. LADD

Department of Education,
University of North Dakota

INHERITED TENDENCIES OF SECONDARY INSTRUCTION IN THE UNITED STATES: HERBERT GALEN LULL, Professor of Education in the University of Washington. No. 3, Vol. 3, pages 155-281, Education Series, University of California publications. April 15 1913. Price, \$1.25.

This publication embodies the author's thesis for his doctor's degree at the University of California. It is a painstaking investigation, from an historical point of view, of the relations between secondary and higher education in the United States, and is comprehensive and timely.

The key-note of Professor Lull's thesis, and the suspicion which started him out on his investigation are embodied in the following sentence in his introduction: "I have a suspicion that the defects of secondary instruction so often enumerated and superficially defined by my colleagues (in college faculties) have been sustained and perpetuated in large measure by the institution they represent."

He describes the gradual changes in aims and in social adjustment of both the higher institutions and the secondary schools of the United States as they have come down to us from the past. It is an accurate account, substantiated from original sources, of the ever present conflict between the old and the new in education, between the past and the present, between the priest and the prophet. It is the story of growth, of adjustments, of *becoming*, in view of ever new conditions and new demands.

Harvard, Yale, and practically all of the older eastern institutions, says the author, were at first professional schools for the ministry and continued so till after the Revolutionary war. Secretary education, whether in academies or in preparatory departments, was for a long time merely *preparatory* in its function; it was conditioned by the college. At first, college entrance requirements were low, but as the academies extended their courses upwards and as their grad-

uates could thus claim advanced standing in the colleges, the latter raised their entrance requirements more and more.

The first *modern* high school was established in Boston in 1821, but many of the subjects offered were "tabooed" for college entrance and from that day to this every modern subject has had to run the gauntlet, to fight for recognition, to struggle for the "right of domicile" both in the acceptable list for college entrance and in the college itself.

The field of choice, however, the "area of flexibility," both in secondary schools and in colleges, has been constantly expanding, and institutions whose sole aim had formerly been the preparation of candidates for the ministry have become great universities with a diversity of aims.

The following contents will indicate the interesting subject-matter and the author's trend of thought: (1) Professed aims and actual practice, (2) The early New England college, (3) The Latin Grammar schools, (4) The influence of the academy upon the college, (5) The growth of the early high schools, (6) Aims and methods of secondary instruction, (7) College admission requirements, (8) Preparatory instruction and report of the Committee of Ten, (9) The Psychology of instruction.

We need more of such careful pieces of research in the field of education, for in this field there is much *a priori* theorizing which cannot be verified by historical research or by scientific experimentation.

Professor Lull's publication should be read by every student of educational problems. A short review fails to do justice to it. It is a distinct contribution to educational history and educational science. Its careful perusal should bring about more uniformity than exists at present in college entrance requirements and will help to effect a closer correlation between secondary schools and colleges thruout the country.

JOSEPH KENNEDY

Department of Education,
University of North Dakota

THE EDUCATION OF TOMORROW: ARLAND D. WEEKS, Professor of Education in the North Dakota Agricultural College. Sturges & Walton Company, New York, 1913. X + 232 pp. Price, \$1.25 net.

"The Education of Tomorrow" is an original contribution in the field of educational values. Professor Weeks takes the point of view that "knowledge is power," providing that knowledge is selected for its instrumental values, its guidance values. Like Herbert Spencer he asks the question what knowledge is of most worth. But his answer is more to the point, at least for present society, than that of the great English philosopher.

Mankind is engaged in production, distribution, and consumption. These groups of activities include man's major social relationships. Therefore, education should be concerned with these three great groups of activities. Whatever one's vocation, social station, and destination may be, he should secure as complete a knowledge as possible, commensurate with his needs, of production, distribution, and consumption. But each of these knowledge groups has tended to become the possession of a class. However, knowledge of production incomplete as it is, is still far in advance of our knowledge of distribution. Knowledge of distribution is in the "esoteric" phase of development. The press, the school, and other agencies are conspicuously lacking as disseminators of distributional information. This statement is especially true of the schools. Scarcely a trace of this kind of information is scheduled in the schools of the United States, except in a few of the larger and more progressive universities. The fact that hundreds of thousands of voters prefer to resort to the strike, sabotage, and other means of direct action, rather than to employ the government, the great "central means of control over distribution," is conclusive evidence of the appalling ignorance of distributional knowledge.

Producers who are not at the same time distributors, are at the mercy of the distributing class. They fail to receive their share as distributors and as consumers. They are burdened with the support of a parasitic class—a class of takers. "Wages bear no fixed relation to the profits of a business, in fact the separation of production from distribution is evidenced by the absence of any attempt to appraise exactly what each producer really adds to the total of wealth. A parasite, complete or partial, may accordingly take more wealth than efficient producers."

To know how to produce is not sufficient. One must have the knowledge which has to do with the division of values. Fundamental to such knowledge would be studies of government in its various phases, sociology, and economics, not as academic subjects, but as representative of the actual concrete functions of distribution.

The traditional subjects of the school have been mainly valuable for knowledge of consumption. However, they have largely failed to furnish fundamental consumptive values because their present forms are still to a large extent the inherited forms which were at one time adapted to the needs of the leisure class. Then again, instruction based upon the theory of formal discipline tends on the one hand to confine a subject to its own inner-system of development and on the other hand, to prevent the instrumental use of the subjects in solving problems of individual and social adjustment.

Professor Weeks's discussion of the requirements in the three great fields of needed knowledge, production, distribution, and consumption, are illuminating, but his masterly treatment of knowledge of distribution is exceedingly suggestive. From the point of view of the practical school men the book is a little disappointing in this connection, owing to the fact that the author has not explained, except in general outlines, what his principles of education, so admirably developed, would mean when applied to the various types of schools growing up in our country. If these three types of knowledge are essential for everyone, then what would he say of our separate vocational schools? What conclusions would he reach in regard to the present curriculum of the elementary school and the curriculum of the so-called regular high school? How would his principles re-valuate the various parts of each branch now in the elementary and high schools? How would the application of his principles modify present methods of instruction?

The foregoing review does not adequately represent the scope and range of the book, its richness in illustration, and its convincing arguments. But let us hope that some of the author's fundamental meanings have been recorded with sufficient accuracy to stimulate a few readers of the "Quarterly Journal" to read this excellent book.

HERBERT G. LULL

Department of Education,
University of Washington

WOMAN IN SCIENCE: H. J. MOZANS. D. Appleton & Company, New York and London, 1913. XIV + 452 pp. Price, \$2.50, *net.* Mail, \$2.70.

The author states that at the time of the inception of the idea of this book, it was intended to cover woman's work in things of the mind, but that the magnitude of such a field proved too great for a single volume. The field was therefore limited to the results of women's work in science, a territory not covered in an adequate way by any preceding volume. Even this field proves to be somewhat large, for the work necessarily becomes almost encyclopedic in character at times.

The work may be divided into four general parts of which the first, covering approximately a hundred pages, is an historical resumé from Ancient Greek and Roman times to the present date of "Woman's Long Struggle for Things of the Mind." In the second chapter, entitled "Woman's Capacity for Scientific Pursuits," the doctrine that woman is intellectually inferior to man, and its changing bases, are taken up historically from Aristotle's philosophy down to more recent arguments based on physical strength, differences in cranial capacity and brain weight. The author goes into details to bring out scientific data disproving a relationship between these anatomical and morphological factors and the degree of intellectual ability. The chapter closes with evidence along the line of special authorities and investigations on the relative intellectual standing of men and women in coeducational institutions, showing the intellectual equality of the sexes.

The third division may be considered to include Chapters VII to XII dealing with women in each of the following fields: Mathematics, Astronomy, Physics, Chemistry, Natural Sciences, Medicine and Surgery, Archeology, Invention; and finally as inspirers and collaborators. The order of the chapters is mainly a chronological one, tho sometimes by the country in which the women made their noteworthy contributions. It is this part, necessarily full, that the encyclopedic phase occasionally impresses the reader. Nevertheless the details are interestingly told with the frequent addition of the personality of the woman aside from her purely scientific representation.

The last division is "The Future of Woman in Science" in which a hopeful glance is cast forward to the time when there are "set free the imprisoned energies of one half of our race," thus more than doubling mankind's capacity for advancement.

The book is concluded with an index and bibliography which cannot fail to aid that student who is stimulated to explore the very interesting field so ably mapped out, in some detail, by the present author. The treatment of the subject is scientific and careful. The book will undoubtedly find interested readers, partly because of its bearing on the truly ever-present "woman question," and partly because of its clear pleasing presentation of facts concerning women and their contributions, now too little known.

NORMA E. PFEIFFER

Department of Biology,
University of North Dakota

University Notes

The Young Men's Christian Association In a recent excellent paper on Some Educational Problems in Kansas, Chancellor Frank Strong, of the University of Kansas, makes the following observations:

"One of the great problems confronting education in Kansas as elsewhere is still the moral and religious problem. If any were misled years ago into the belief that intellectual training provided sufficient safeguards and moral standards, certainly our experience in the last decade must have disillusioned them. There is nothing so futile as the attempt to make intellectual training take the place of moral and religious training and no man is so dangerous as the educated man gone wrong. In my judgment the grave point of danger in our schools is not the college or university. Long experience leads to this conclusion and statistics and general observation point inevitably to the same conclusion. The grave point of danger is the home and high school and here must the great work be done, for after all ours, with all its defects, is a Christian civilization. Historical Christianity is the basis of our whole life and we, as a nation, shall stand or fall with it."

In a State University the most effective agency for moral and religious training is the Christian Association. Time was when their ideals were misunderstood and the membership failed to give the dignity and following which the standards of the Association demanded. Recently, new interpretations of Biblical truths and larger and more modern concepts of Christianity are finding effective expression in the welfare work for which young women's and young men's Christian Associations clearly stand.

In the University of Illinois there were enrolled, in 1911-12, 633 men in the Young Men's Christian Association and 295 women in the Young Women's Association. Each association employs a general secretary for full time. Both are affiliated with the World's Student Christian Federation. A large Association house, with reading room, library, piano, magazines and papers, correspondence tables, telephones and every convenience, is devoted to the development of this important adjunct of higher education in the state of Illinois. While the University of Illinois undoubtedly leads all other state universities in recognizing the value of the Christian Associations in developing the ideals advocated by Chancellor Strong, it is true that

in all of the live state universities an active and pronounced support of Christian Associations is found.

It is gratifying to note that the University of North Dakota is fully abreast of this movement. The employment of the full time of a student secretary for the Young Men's Association, provision for quarters and literature, a live support of Bible study and specific moral instruction, are evidences of the right attitude of faculty and student members of this institution.

Like every good work in the world, the value of the Association movement is to be measured by the investment of time, thought and energy invested. No member of the University faculty, no member of the University student body can ignore the trenchant statements made by Chancellor Strong. The real question is, what means have we for solving this problem? The pertinent question, therefore, is: Will each thoughtful member of faculty and student body answer loyally, "Here am I; send me—an active supporter of the welfare movement of the Christian Association at the University."

Economy of Time in Education The United States Bureau of Education has recently issued a report of great interest to those engaged in the work of college education. The report is entitled "Economy of Time in Education," and has been prepared under the direction of President James H. Baker of the University of Colorado, who has served as chairman of the committee. Readers of the Quarterly Journal may be interested in this matter on account of the recent appointment of President Frank L. McVey as chairman to succeed President Baker who retires from the Committee after several years of efficient work as chairman.

"The committee have endeavored to form a plan that would do away with the two-year loss in education. They propose that six years be assigned to the elementary school instead of eight as at present; that the high school period be from the age of 12 to 18, divided into two parts, of four and two years each; that college work extend from 18 to 20, or 16 to 20, according to the method of distributing the last two secondary years; and that graduate or professional work at a university cover the years from 20 to 24. This would enable the boys and girls to get ample vocational training after the age of 12; it would enable those who go on to college to get thru their college work at the age of 20; and it would save the professional man from having to wait until 27 to start his professional career.

The report insists that the present elementary course is too long;

that the ground now covered in eight years can be covered just as efficiently in six, allowing secondary work to begin at the age of twelve. To save an elementary schooling they urge: "Choose the most important subjects and the most important topics; make a distinction between first-rate facts and principles and tenth-rate. Confine the period of elementary education to mastering the tools of education. Include the last two years of the present elementary school in the period of secondary education and begin the study of foreign language, elementary algebra, constructive geometry, elementary science, and history two years earlier than at present."

"Emphasis is laid on the necessity of concentrating on a few valuable studies: The great mistake of our education is to suppose that quantity and strain constitute education. Education is a question of doing a few essential things well and without over-strain. The college has committed a grievous mistake in demanding ever more in quantity rather than in quality produced under conditions of healthy normal development.

"The report takes up the problem of saving time in education from the point of view of the college, the school, and society at large, as well of the individual pupil; and it contains opinions on every phase of the question from representative school men and the general public."

The Enrollment

The enrollment figures are always an interesting fact in the development of a university. On December first there were in attendance upon the schools and colleges of the University of North Dakota, 675 persons. Of these, 10 were in the graduate department, 218 in the College of Liberal Arts, 134 in the School of Education 43 in the School of Medicine 96 in the Colleges of Engineering, 85 in the Law School, and 89 in the Model High School. The total in the colleges is 586. This group of young people come from four foreign countries and 17 different states, while 43 of the 50 counties of North Dakota and 153 towns are registered as the residences of the students. Many nationalities also are represented in the student body, among them being found Americans, Norwegians, Swedes, Germans, Danes, Canadian, English, Irish, Scotch, and Hollanders. From the point of view of religious preference, 571 students designated membership or preference in churches. The Lutheran bodies had the larger number, while the Methodists were second, Presbyterians third, Catholics fourth, and Congregationalists fifth. In the group twenty different religious denominations are represented.

The Inauguration of the President of the University of Manitoba

On the 18th and 19th of November Dr. J. A. McLean was inaugurated as the first president of the University of Manitoba. The two days were given over to addresses and conferences and the usual functions of an inaugural ceremony. The University of Manitoba is an interesting institution due to the fact that the problem of bringing together and uniting the various factors of higher education in the province must proceed under considerable difficulty. The University grew out of the affiliation of private colleges for the purpose of securing instruction in the sciences. We in North Dakota look with interest upon the progress which is being made, first because the attempt is to bring into existence a provincial university maintained and supported by funds from the province, and second because the problem of the affiliated colleges and the University is just the reverse of that which exists here. At North Dakota the trustees of the University have invited the religious denominations to affiliate their colleges with the invited the religious denominations to affiliate their colleges with the such affiliation. The North Dakota plan would seem to be the more logical one, and without doubt the bringing together of the educational forces of the state at one place in such a way as to secure co-operation in all effort is the desirable thing and likely to produce the greatest efficiency. The University of North Dakota was represented at the Inauguration by President Frank L. McVey and Dr. O. G. Libby the former giving an address on "Statesmanship in Education." This institution wishes for the University of Manitoba great progress and a continuation of the cordial relations existing between the two universities, which are evidenced by the system of exchange professorships and the long series of intercollegiate debates that have been established between them.

The Meeting of the National Association of State Universities

In November of each year the National Association of State Universities holds its annual meeting in Washington. These meetings are of unusual interest because of their informality and freedom from publicity. The consequence is a great frankness in the discussion of university problems. This year the program in the main was devoted to a consideration of the cost of education in its various aspects. Another part of the program was the the consideration of athletics and its relation to the general problem of education. Some consideration was also given to the question of the larger function of the state university in service for the commonwealth.

President Thomas F. Kane of the University of Washington was elected president of the association for the coming year.

The University of North Dakota was represented on the program by the President of the University, who contributed a paper on the subject of "Net Cost in the Higher Educational Work of the State."

The State Educational Association The twenty-seventh annual meeting of the North Dakota Educational Association was held in Fargo, November 5 to 7. In some respects the meeting was the most successful that has been held by the Association, the enrollment reaching a total of over 1500. As to the part taken by the University, altho very little class work was suspended, many members of the faculty were in attendance for at least a day. Compared with the other higher institutions of the State, the University ranked seventh in a list of thirteen in respect to the percentage of its faculty enrolled as members. Among those appearing on the program were Professors Kennedy, Gillette, Bek, Libby, Taylor, Simpson, and Boyle. Mr. Norton was president of the Musical Education section, and Mr. Davies of the Social Science section.

The principal features of the general program were the addresses delivered by Hon. Simeon D. Fess of Ohio, and Henry R. Pattengill of Michigan. The address by the former on "The Humanity of Abraham Lincoln" was especially enjoyed. Regarding the arrangement of the program there was, however, a wide-spread criticism, tho it was constructive and in no wise reflected on the speakers of the occasion. It was very generally felt that the precedent of a year ago, when specialists in certain departments of education were listened to, was thoroly commendable and should have been continued. It is admitted that humorous and entertaining addresses are appreciated, and the statement of old-time educational principles presumably has a value, but nevertheless the State Educational Association has a more serious function to perform. Altho North Dakota has reason to be proud of its past and present educational progress, it has no reason to relax its striving for improvement. It is true that our State made a fair showing in the recent valuation of the several state public school systems by the Russell Sage Foundation, being eighteenth in a list of forty-eight; yet it should be observed that if the southern states are omitted and the comparison limited to those states with which we may more fairly be compared, we fall to about the middle of the list. In bringing to pass the improvement that is

needed the State Association may be an influential agent if it will establish the policy of bringing in educational experts who can give an impetus to specific reforms thru their ideas and prestige.

There are, of course, a few teachers who prefer to be amused rather than instructed,—whose influence, if dominant, would drag down the yearly meetings to the level of a holiday and shopping excursion. Outside commercial influences, unfortunately, reinforce the same tendency. But the large majority of the members of the Association are keenly anxious to profit by the best leadership in their profession. The State Association has done commendable work in forwarding the educational interests of the state. It can do much more.

The National Social Science Series A new series of books called the National Social Science Series has been announced by the McClurg Co. of Chicago, with President McVey as the editor. The purpose is to place at a price within the means of every reader a strong series of books on fundamental questions of present day interest in America.

Each subject will be written by an expert in his field, and treated in a manner especially fitted for the busy reader. The project is a unique one, and the publishers expect to carry it out in a thoro-going way.

The names of Dr. J. M. Gillette of the Department of Sociology in the University of North Dakota and of Dr. John L. Coulter, a graduate of the class of 1904 and now of the United States Census Bureau, appear in the list of authors. Dr. Gillette writes upon "The Family and Society" and Dr. Coulter upon "Rural Welfare." Other authors are Professor W. M. Bailey of Yale University, Dr. John F. Crowell, associate editor of the Wall Street Journal, Professor William A. Scott of the University of Wisconsin, Mr. C. B. Fillebrown of Boston, Professor J. S. Young of the University of Minnesota, Dr. Henry C. Wright of the Russell Sage Foundation, and Professor W. E. Clark of the College of the City of New York. It is the expectation of the publishers to extend the series to include many titles. Thus far, the publishers have announced books on Money, Banking, The Family, The Cost of Living, The City, Competition, The State and Government Statistics, Rural Welfare, Taxation and Political Economy.

The readers of the Quarterly Journal will watch with interest the growth and development of the Series under the direction of President McVey.

COURSES IN ENGINEERING

GIVEN IN THE

Division of Engineering of the University of North Dakota

I. THE COLLEGE OF MINING ENGINEERING:

1. **The Curriculum.** The courses give a broad technical and practical training for those occupations more or less closely associated with mining, metallurgy, milling, coal and gas engineering, cement, clay working, and other allied manufacturing industries.

2. **Degrees.** The four-year course leads to the degree of Bachelor of Science in Mining Engineering and an additional year of graduate work to the professional degree of Engineer of Mines.

3. **Equipment.** The equipment is high grade, including working models for making brick, pottery, and clay products, and for coal testing and treating, gas manufacture, etc.

4. **Experimental Stations.** At Hebron is situated a mining and coal and gas experimental station under the direction of the trustees of the University and the dean of this college. Here practical tests on a commercial scale are carried out.

Address, DEAN E. J. BABCOCK, University, North Dakota

II. COLLEGE OF MECHANICAL AND ELECTRICAL ENGINEERING:

1. **The Curriculum.** Courses are offered leading to the degrees of Bachelor of Science in Mechanical Engineering, and Bachelor of Science in Electrical Engineering. Five-year courses lead to the advanced degrees of Mechanical Engineer and Electrical Engineer.

2. **Equipment.** The shops are well equipped with the latest machines. The mechanical and dynamo laboratories have, among other pieces of apparatus, a fifty horse-power suction gas producer, and gas engine, and two seventy horse-power boilers, each with a different type of furnace, including an automatic stoker. The facilities for offering thoro courses in power engineering and in research work in the utilization of various types of power are ample and of the very best. The recent legislative appropriation of \$17,000.00 for laboratory purposes has enabled the College still further to improve these facilities. For further information address

DEAN CALVIN H. CROUCH, University, North Dakota.

III. THE COURSE IN CIVIL ENGINEERING:

1. **The Curriculum.** The distinct professional lines to which attention is given in the course in civil engineering are the following: (1) surveying, (2) mechanics and bridge and truss stresses, (3) concrete construction, (4) railway location and construction, (5) hydraulics and water power, (6) sanitary and municipal engineering.

2. **Degree.** The degree of Bachelor of Science in Civil Engineering is conferred upon the completion of the four-year course. Upon the completion of the fifth year the degree of Civil Engineer is awarded.

3. **Equipment.** The equipment consists of the usual instruments for measuring, testing, etc. Shops and laboratories of all colleges are open to engineering students.

Address, PROFESSOR E. F. CHANDLER, University, North Dakota.

For general information on all engineering courses, address the Registrar, University, North Dakota.

The School of Education

UNIVERSITY OF NORTH DAKOTA

FUNCTION: The preparation of teachers and principals for secondary schools, superintendents for city schools, and instructors for Normal schools and colleges.

ENTRANCE REQUIREMENTS. Two years of work in the College of Liberal Arts regularly required.

DEGREES AND DIPLOMA: The degree of Bachelor of Arts and the Bachelor's Diploma in Teaching (the professional instrument which entitles the holder to a First Grade Professional Certificate), on the completion of the regular four-year course of study.

Graduate courses are offered leading to the degree of Master of Arts.

SPECIAL CERTIFICATES: In Commercial work, Domestic Science, Drawing, Manual Training, and Music, on the completion of two years of prescribed work.

MODEL HIGH SCHOOL: The Model High School for observation and practice in all lines of high school work is in full operation.

GOOD SENSE: If you aim to practise medicine attend the School of Medicine; if you intend to practise law, attend the College of Law; if you would be an engineer, attend one of the colleges of engineering; **and if you are to teach, enroll in THE SCHOOL OF EDUCATION.**

For information, address

DEAN JOSEPH KENNEDY,
University, N. D.

The College of Liberal Arts

UNIVERSITY OF NORTH DAKOTA

Twenty-four departments offering more than *two hundred* different courses of study.

Specially arranged curricula for those who intend to become social workers or to engage in one of the various lines of business, such as banking, journalism, etc.

One year in the College of Law or two years in the School of Medicine or any of the Engineering Colleges may be elected, thus enabling the student to obtain the degree of Bachelor of Arts and a Law, Medical, or Engineering degree in six years.

Graduate courses leading to the degree of Master of Arts.

For further information, address

THE REGISTRAR,
University, N. D.

The College of Law

UNIVERSITY OF NORTH DAKOTA

OFFERS:

A Three-Year Course

leading to the degree of LL. B.

A Six-Year Academic and Law Course

leading to the degrees of A. B. and LL. B.

A Seven-Year Academic and Law Course

leading to the degrees of A. B. and J. D.

THE COLLEGE OF LAW is a member of the Association of American Law Schools. It has a **STRONG FACULTY** and a **GOOD WORKING LIBRARY**.

For further information, address

Dean Robert L. Henry, Jr.
University, N. D.

The School of Medicine

University of North Dakota

SCOPE: The University School of Medicine offers to young men and young women the first two years of medical work.

ENTRANCE REQUIREMENTS: Two years of prescribed collegiate work preceded by fifteen prescribed units of high school studies.

DEGREE AND CERTIFICATE: Upon the satisfactory completion of these two years of medical work the University grants the degree of Bachelor of Arts and the Medical Certificate which admit to the third year of medical colleges of good standing.

ADVANTAGES: (1)—Thoroly equipped teachers of all the subjects included in the combined curriculum; (2)—Splendid laboratory and library facilities; (3)—Small classes, making it possible for the instructor to give a large amount of personal attention to each student; (4)—Expenses reduced to the minimum; no tuition fee, only the semester fee of \$25; living expenses very low; much car far saved.

A course of one year of college work for nurses gives advanced standing in leading training schools.

For further information, address

THE REGISTRAR,
University, N. D.

Announcement

THE QUARTERLY JOURNAL is a periodical maintained by the University of North Dakota. Its primary function is to represent the varied activities of the several colleges and departments of the University tho contributions from other sources are welcomed, especially when they are the fruitage of scientific research, literary investigation, or other forms of constructive thought. Correspondence is solicited.

The subscription price is one dollar a year, single numbers, thirty cents.

All communications should be addest.

THE QUARTERLY JOURNAL,
University, North Dakota.

Editor's Bulletin Board

THE next number of the QUARTERLY JOURNAL, the fourth and last of Volume IV, will represent the mental and moral sciences. We have several very excellent articles suggested, and feel safe in promising an unusually interesting number. Among the articles is one on "Democracy and Literature" by Dr. A. W. Crawford, Professor of English in the University of Manitoba. Professor Squires will contribute another of his interesting studies in literary interpretation—"An Appreciation of the Poet Collins." The Pageant Movement will be discust by Professor Koch of the Department of Dramatic Literature, and the Humor of Mark Twain by Mr. J. A. Taylor, also of the English Department. Dr. Samuel Halfyard, of Wesley College, writes on "A Spiritual Universe," and Dr. Stearns, of Fargo College, on "The Hebrew Account of the Creation in the Light of Some Others." We also have Dr. Jackson's study of "Architectural Art in the Rhineland—the Romanesque Style," suggested for the January number but crowded out by lack of space. Professor Norton, of the Department of Music, writes appreciatively on "The Ministry of Music."

The University of North Dakota

SUMMER SESSION, 1914. JUNE 22 TO JULY 31

THE COLLEGE SECTION offers instruction in many college departments including art, economics, education, history, languages (ancient and modern), literature, philosophy, psychology, sociology, and the sciences. The University gives credit for work done during the Summer Session the same as during the regular university year.

SPECIAL FEATURES IN COLLEGE SUBJECTS:

Art: Two lines of work offered: (1) Drawing and painting from still life and nature specimens, and (2) Work adapted to the needs of teachers of drawing in the grades and the high school.

Domestic Science: Advanced courses offered in both cooking and sewing, one course especially designed for teachers of the subject in high schools.

Education: The new school law requires professional equipment of all teachers; to meet the need courses are offered in nearly all of the leading phases of the subject including the history of education, adolescence, principles of education and psychology.

Experimental Psychology: A well equipped laboratory offers opportunities for making interesting experiments in educational psychology. The work is planned especially for teachers.

Library Science: A course of lectures with opportunity for much apprentice work; should equip for successful handling of small libraries.

Manual Training: Excellent facilities for prospective teachers as well as for students doing regular work.

THE BIOLOGICAL STATION at Devils Lake, with all its facilities, will be open for work in botany, zoology, and physiography.

SPECIAL LECTURES of an educational and inspirational character are offered daily without extra charge. The speakers include eminent authorities in various fields of thought.

THE ENTIRE FACILITIES of the University are at the service of students during the six weeks of the Summer Session. Residence Halls for men and women. *A cool climate and a beautiful campus.* Expenses reduced to the minimum.

For further information, address

THE REGISTRAR, University, N. D.

The Quarterly Journal

VOLUME 4

APRIL, 1914

NUMBER 3

Syndicalism and Socialism and Their Meaning

FRANK L. McVEY,

President of the University of North Dakota

A few years ago the word Syndicalism was practically unknown as a name. The contrast of it with Socialism and the problems which have come out of the creation of such parties as the Industrial Workers of the World in this country and the Confederation Generale du Travail of France, to say nothing of the various organizations in England and Italy, have brought before the public mind a clearer vision of the viewpoint of some of the radical movements of the present day.

Neither syndicalism nor socialism accepts the existing social order. Both, however, emphasize the socialization of industry, altho the ends to be obtained and the means of bringing them about differ. To fight against capital continually, by any method that may come to hand, is the purpose of syndicalism. Disappointed in the political reforms of the day, seeing no hope in the socializing movement of great masses of labor without tool and without land, the syndicalists have come to the conclusion that the only way in which they can get a larger share of benefit for themselves is to fight capital continuously, hoping that out of the chaos will evolve control of industry by the workers.

Looking at the struggle from this point of view, the syndicalists have accepted the socialists' concept of class strife, and have adopted the ideals of the anarchist and the weapons of the trade union. Syndicalism is, in fact, a form of trade-unionism, tho refusing to acknowledge in any sense the value of the wage system. It aims at the abolition of the capitalist class and the replacing of it by a new social order in which there shall be no exploitation of labor. This result is to be gained by direct action without the ordinary political or parliamentary methods practised at the present time.

It is essential in the understanding of syndicalism to have some idea of the meaning of the terms general strike and sabotage. The

hope of the syndicalist is to bring all the workers of the world to act together at some agreed time so that they can peacefully lay down their tools and refuse to work, knowing that out of such a situation will come the great catastrophe of a broken society. The stopping of all work will mean that nothing will be done until their demands are met. It is recognized, however, that a general strike is not a possibility at one time; that it may come first in an industry, second in a community, and third in a nation. Looked at broadly, when it reaches its highest form it is the great final act in which the capitalist system is to be overthrown by the simple process of refusing to work. In support of a view of this kind it is pointed out by the speakers of syndicalism that great strikes have taken place which clearly demonstrate the wisdom of such a move as a weapon in industrial warfare. Attention is called to the Paris Commune of 1871, to the strikes in New Zealand, to the general strike in Sweden in 1902, and later in the conflicts that took place on the railroads and in the mines of England in 1911 and in the demonstrations in France, Holland and Belgium in the last ten years. It is a question, however, whether any of these instances can be looked upon as distinctly successful. The Paris Commune had involved in it so many elements, and was, from the point of view of an effort on the part of the working people to maintain a government and organization, so unsuccessful, that it can hardly be pointed to as a demonstration of this policy. The situation in Stockholm in 1909 showed that under certain conditions the capitalists' system is capable of defending itself against a general strike. The problem of bringing about a condition of chaos by a general strike is by no means a simple one.

In connection with the policy of the general strike is the use of sabotage as a means of irritating and interfering in the field of production. "Interfere in every way with the profits of the boss," says Delegate Slayton of the Socialistic party convention in 1912. "Strike, but stay on the payroll." Injure machinery and product by sly means. That is sabotage. In fact, what was the policy of soldiering in England became in France, thru theorizing, the policy and propaganda of the Syndicalist movement.

So much by way of explanation of the movement that has come into large attention and concerning which there now appears an increasing literature.

In the minds of many people no difference exists between socialism and syndicalism. It is true that socialism has many meanings and many exaggerations of the social principle. It has a history, an economic concept, a philosophy and a religion. As syndicalism is in

its final analysis an emphasis of the extreme of individualism, so socialism is the manifestation of the opposition to industrialism. At its base is a concept of equality, just as at the heart of every labor movement is a race longing for a society in which the spirit of equality shall be realized. It is not trade-unionism; it is not government ownership; it is not co-operation; it is a theory of industrial society. To use the words of Richard T. Ely: "Socialism is that contemplated system of society which proposes the abolition of private property in the great material instruments of production and the substitution therefor of collective property; it advocates the collective management of production, together with a distribution of the social income by society and private property in a large proportion of this social income."

Socialism, therefore, proposes to abolish exploitation thru profits, rent and interest, to set aside the wages system and to guarantee to every man the realized value of his labor. These purposes are to be accomplished thru common ownership, common management or distribution of income thru common authority, with private property in a comparatively small proportion of the income.

The philosophy of socialism is gathered around the materialistic conception of history. A society with an economic environment develops classes which are produced by the economic conditions, and these same forces tend to change and destroy the classes as the proletariat is increased. So, out of the factory system comes landless men, who, increasing in their class consciousness, come into a knowledge of the conflict between the tool-owning capitalists and the wage-earning laborers.

It is at this point that the two, syndicalism and socialism, diverge.

Tired and impatient with the political methods of socialism, the syndicalist looks to direct action thru the medium of the general strike and the wearing process of sabotage to bring about the great revolution, the chaos of existing society. He refuses to accept the present state, finding in it nothing but a fabric that has been built up by the capitalists. The socialist hopes thru the process of legislation, thru the capture of the existing government and the state to bring about the result of common ownership of the means of production under a collectivist system.

Perhaps a further consideration of these two movements may be of value in bringing out their difference. It is the hope of the syndicalists that when the period of revolution comes, thru the medium of the general strike, ownership and control of industries will take place thru the workers actually engaged in them. Thus, the railroads

would be owned and controlled by the men who work in the railroads; the business of the manufacturer would be owned and controlled by the men who work in the factories. In some instances this point of view is modified by the statement that the community directly around about the factories shall own and control the industries. On the other hand, the socialists maintain that the means of production shall be owned and controlled by the social democratic organization, that the process of the socialization of industry shall take place thru the medium of the state. This difference really marks the distinction between the collectivist and the anarchist, the first admitting the need of an organized society, and the second looking upon it as unnecessary, unwise and deteriorating.

If, then, we have in what has been said up to this point a fairly clear idea of the meaning of these two terms, we may well ask what is their value, what is their purpose?

The frank desire of the syndicalists as represented in the purpose of the Independent Workers of the World in this country,—to destroy property and to interfere with the means of production as a method of advancing their own interests and of securing a larger justice for the landless and toolless worker, is sure to lead to the breakdown of the movement.* Everything that is now represented in syndicalism was brought out more forcibly in the labor movement of the early 30's under the direction of Robert Owen. What is now

Note: *To discuss socialism without carefully distinguishing between Marxian, Fabian, Utopian, Communist, Opportunist, Revisionist, Socialist Labor, Syndicalist, and the double I. W. W. is to give offense to all parties. The article on "Syndicalism—The Creed of Force," by Arturo M. Giovannitti, in our issue of October 30, was concerned exclusively with the I. W. W., of which he is a leader, and we have since received several letters expressing the wish to have the attention of our readers directed to the existence of another organization having the same name and ultimate aim but advocating more peaceable methods. We quite appreciate the desire of our correspondents to dissociate themselves from the Haywood and Giovannitti form of the Industrial Workers of the World and we quote the letter that expresses the difference between the rival organizations most clearly and emphatically:

"The I. W. W. was launched in 1905 in Chicago by a body of delegates called together by a manifesto which set forth the necessity of the workers organizing as a class on the political and on the economic or industrial field. One of the faults found with the A. F. of L. was that it prevented the workers from organizing as a class on the political field and striking out for themselves.

It was at this 1905 convention that the principles of industrial unionism had their birth, the elements being the recognition of the value of working class political action and of the value and absolute necessity of a union based on industrial instead of craft lines, with a revolutionary purpose.

For three years the I. W. W. went along under these principles without a serious hitch, altho the anarchist element among the adherents of the new union had expressed dissatisfaction with the recognition given to political action.

The preamble to the constitution adopted in 1905 stated: "Between these two classes (the capitalist class and the working class) a struggle must go on until all the toilers come together on the political as well as on the industrial field, and take and hold that which they produce by their labor."

If you will read the preamble to the constitution of Mr. Giovannitti's "I. W. W." you will see that this clause holds no place therein. Why? Because Mr. Giovannitti's union is not the I. W. W. It is an anarchist

being said and done is not new. The story of the breaking of machines is a story old as industry. "It is the contrast of mass action with individual action, the very contrast that exists between socialism and syndicalism." The destruction of property for the purpose of gaining an end is a naïve and a boyish point of view of the industrial world and of social organization. More than that, the practise of sabotage weakens the force of class solidarity upon which the very existence of the movement depends. Instead of giving to it a broad foundation, it places the crucial and critical events of the struggle in the hands of individuals. The syndicalist discards and despises all legal methods and advocates insurrection as a means of gaining his ends. In his "Class War in France," Engels, writing in 1895, said: "The time for small nonentities to place themselves at the head of the ignorant masses and resort to force in order to bring about revolutions, is gone. A complete change in the organization of society can be brought about only by the conscious cooperation of the masses; they must be alive to the aim and view; they must know what they want." The socialist's view does not call for mere injury of employers unless some benefit is to inure to the workers. "They have recognized that the mere destruction of tools and materials is quite as apt to help the competitor of the capitalist who is injured as it is to materially injure the capitalist who is worked for."

Looked at broadly, these two movements represent a vast differ-

offshoot which was given birth to three years after the I. W. W.—it was the result of a packed and "stolen" convention of the I. W. W. which took place in Chicago in 1908.

At this convention the anarchist slum element showed itself off to perfection. Pursuant to their declaration that "questions of right and wrong do not concern us" and "direct action gets the goods," the slummers, by arbitrary seating of delegates friendly to political action and Socialism, and by intimidation and all-round disorderliness, "stole" the convention, mutilated the preamble to the constitution and raped the organization.

What gives the Giovannitti-Haywood "I. W. W." the appearance of being genuine is that it was left in full control of the 1908 convention and of the national head-quarters. The decent delegates, who stood by the original industrial union principles, which discard anarchy in all forms, could not and would not fight the slummers at that convention with the latter's own weapons. Instead they "reorganized" the I. W. W. at a convention in this city a few months later.

The genuine I. W. W., which is based on the principles of political and economic action, and civilized methods of warfare—the ballot, education and orderly organization and which refuses to countenance sabotage, slugging and direct action as weapons that will free labor from wage slavery, now has head-quarters in Detroit, Michigan. Among persons familiar with the radical labor movement the I. W. W. is referred to as the Detroit I. W. W. while Haywood's and Giovannitti's union is called the Chicago or anarchist I. W. W.

The Haywood union would dispossess the capitalist class by physical force alone—economic action—it places itself outside the pale of the law; indeed, of civilization. Its methods are those of barbarism. It represents reaction in its worst form, if reaction has a worst form, and the press of the country is aiding that reaction by holding the anarchist Chicago "I. W. W." up to the public as the bona fide organization, and maintaining its fast becoming a disreputable silence in regard to the original I. W. W., which has headquarters in Detroit, and which is endorsed by the Socialist Labor Party, the oldest and most orthodox Marxian Socialist organization in this country.

RUSSELL PALMER.

From the Independent of Dec. 4, 1913.

ence in point of view. The syndicalists are really anarchists. They do not believe in the state, but accept the idea of groups or communities owning the means of production and engaging in the business of producing wealth. The socialists, on the other hand, accept the state; in many instances they believe in utilizing the existing state and come to the conclusion that in the long run political methods will accomplish larger results than any result that force can bring about. It has taken one hundred years of bitter history to install this truth in the minds of many leaders. That is the reason why syndicalism is more of a menace to the progress of socialism than it is to existing society.

As one listens to the various discussions of economic problems, from the function of money to the business of production and distribution, it appears that many of the fundamentals have been lost sight of. Wealth is a joint product brought about by the utilization of the forces of nature and of labor. But there are two other factors,—capital in the form of existing wealth, and that peculiar thing known as organizing ability and power,—that are fundamental and essential in the production of wealth. In an individualistic society a reward of rent is paid to the land-owner, wages to the laborer, interest to the capitalist, and profits to the undertaker. The elimination of any one of these factors means a failure to appreciate the problem. It may be that private ownership of land should not exist. It may be that there should be some system other than that of the wage system, but without the power of management, of organization, and administration, it would be impossible to bring together any kind of industrial organization. That society to-day has defects is known and recognized by all; but the society of to-day has not been developed in the course of a year or of a decade, but thru the slow growth of centuries. To say, therefore, that the process of securing control of modern society shall be thru the medium of the destruction of wealth is as naïve as to assume that the breaking of glass is good for trade and justifiable as a business procedure. Moreover, present day society is vigorous, strong and powerful. The principle of private property has existed in the social institutions of the Anglo-Saxons for thousands of years. "It runs as strong in the blood of the peasant, of the laborer, of the farmer, of the clerk, as in that of the captain of industry." To seek, in consequence for the destruction of wealth in order that society may be brought to a condition of chaos is a foolish concept of what has been done thru the centuries. The socialist is far nearer the real purpose of society than the syndicalist, for he recognizes the need of a central organization. The

wisest of the socialists have come to the conclusion that it will take decades, yes, generations, to bring about the thing that they are striving for, and that only thru the processes of the existing social machinery and extended education of the masses.

In my own view, society will not proceed either by the lines of anarchy or the medium of extreme socialism, but along the middle ground lying between the two. In the main, the basis of the present social order is undoubtedly found in private property and the freedom of contract. In its development private property has been greatly modified and it has not yet reached its final form. With this growth of property rights has come an increase in the mass of what the economists call free goods. These are found in an enlarged body of knowledge, expired patents, parks, forest lands, and enjoyments provided the people by municipalities and national governments. In the feeling, a more and more intense one, that private property is a social trust to be administered carefully and wisely with some regard to the community in which its possessor lives. The law, too, has attempted to restrict incomes due to monopoly profits and by proper classification to provide for the regulation of inheritances, expecting thru these methods to change the distribution of wealth and consequently to open the opportunities now held by a few to a much larger group. Every generation sees a marked change in the movement and ownership of property. The state, by an easy and natural method, can exert a great influence upon wealth distribution by establishing wisely framed inheritance laws. This in itself is sufficient to indicate that the time for a social revolution has not yet been reached, for it is possible to materially modify the present system without destroying its best elements.

The presence of a democracy in a state complicates the problem, particularly if that state has no restricting monarchical system. In its earlier history a popular sovereignty may be one in which the citizens are on an equal material basis and the distinctions between men largely of an official nature. In time the satisfaction of material wants becomes the dominant aspiration and wealth the means by which power is secured. Power and wealth, then, are synonymous, religion loses its hold on men, the sentiment of loyalty so manifestly strong in a monarchy declines and selfishness becomes the rule of life as well as the motive for participations in the activities of government. Men come to confuse personal ends with those of the state, regarding the government of the latter as a means to secure their purpose. There is then brought into the political life a mercenary spirit that is exceedingly demoralizing to the morale of citizenship.

Public welfare is overlooked and important problems are constantly met by restrictions and difficulties. The modification of the disturbing elements—private property and freedom of contract—depends upon the democracy; but if the democracy is a mercenary one, there is little hope for the alteration of property rights by inheritance laws and adequate taxation, and as a consequence a social movement, directed by a class spirit and a definite code of action, appears as a distinct factor in the life of the state. That social movement is based upon three elements; first, an existing order of society resting in the main upon the methods of production and distribution of the material goods necessary to human existence; second, a class which is discontented with the existing conditions; and third, an ideal which the discontented hold up and express in programs and demands. All these elements are present in modern states. The movement forward from the simplicity of the agricultural stage is marked by greater inequalities of material conditions and a hardening of class lines. It is evident that a forestalling of these difficulties must be met by wider activity on the part of the state and a reasonable change in existing conditions and methods of production and distribution, in order to withstand and prevent anything like a hasty and ill-considered social movement.

The problem centers about the phrase "Equality of Opportunity." The desire bound up in it expresses itself in the demand for social reforms that shall give a new freedom for race development. "We want," says Mr. Webb, "to bring about the condition in which every member of society shall have a fair chance to use and develop the gifts with which he happens to be born." A few influences are now at work in this direction: these are public education, sanitary laws and their administration, the building of better tenements, the shortening of hours of labor, the prevention of child labor, establishment of banks, charity organizations and philanthropic enterprises. But they are inadequate to withstand the great industrial forces constantly making for inequality. There can be no denying that land and property ownership, whatever the economic grounds of their defense, develop influences working toward inequality in production and distribution. Their tendency is constantly in the direction of inequality of income, and that in turn works toward inequality of opportunity and production. One follows the other.

With the filling of countries by immigration, commerce and invention are restricted, because there are then no new regions to open up, and an outlet for the ambitious and discontented must be found in some other way than this traditional one, so long practised in

commercial lands. The method of satisfying discontents has been to extend the suffrage to larger and larger numbers of workers and also to grant more extended privileges thru the enlarged functions of the government. In a democratic state the tendency is toward wider suffrage, even to universal suffrage, because the ruling classes find it difficult to carry their policies without a greater voting power, but the masses have begun to reflect that this power of the ballot can be used for their own well-being, thru the control of the governing machinery of the state. The use of such a power is, however, fraught with a great danger, a danger always inherent in a democracy, but in this case emphasized by the wider activities of the state. That danger is the possible loss of individual liberty and the dominance of incapable and demagogic leaders. To these are but two possible offsets in a state not yet socialistic, the maintenance of civil liberty and the submission of the people to rational guidance.

The wage-earners, and particularly those following the socialistic parties, complain constantly of low wages and a small share of the product created. Here is a problem as important as those of corporation and monopoly. The option offered is some form of the wages system (which must always exist under a capitalistic form of society) or the complete elimination of the wages system and the introduction of a form of share which shall depend upon abilities or needs. If the present society is to continue, the wages system will be a part of it, but by introducing profit-sharing, gain-sharing or collective bargaining, it is possible so to modify it as to render greater justice in the division of the product. Whatever may be said of these methods of determining wage contracts, they give to the wage-earner an incentive and a larger share of the product. The development of employing and trade-union groups has placed emphasis upon the collective bargaining method of determining wages. For its final outcome there must be an increased responsibility on the part of the bargaining groups in their relation not only to each other, but to the public. With monopoly power limited and restricted by law the wage-earner ought to secure that portion of the product which is due to the increased skill of the worker, because of his power in the group organization to modify the old wage contract. In times of depression, however, the large capital organization can dictate terms of employment, but the possibility of modifying the wages system and the hope of actually doing so will retain many men in the ranks of the conservatives long after the more radical have given up the hope of anything better under a capitalistic regime. The continuance of the present system depends upon private property, private capital, labor

and the wages system. The breakdown of any one of these materially affects it, in fact, so much so that every effort should be made to modify them so as to make the worker satisfied with his share.

The solution of such difficulties as are presented in the immediate problems referred to in the last paragraphs require some attitude on the part of the state. The individualist believes in the minimum of state interference, justifying it, when necessary, on the grounds of forcing equal conditions: namely, of giving economic principles an opportunity to act without restrictions, moral, ethical or political. He believes that a wide suffrage will place the government in the hands of the emotional rather than the intellectual. He, therefore, looks to a limited suffrage and an increased responsibility of officials as the two things necessary for a betterment of present conditions. In this view he has much to justify him, but the regulationist says we must have systematic legislation, for the institutions of government and industry are not well enough formed to give the service and freedom from abuse that a people have the right to expect. Consequently this group of advocates present certain legislation of a curative and preventive kind which they expect will be enforced and carried out by the officers of the state. They also present a third requirement, the elimination of political fraud from the conduct of government. Each and all of these are based upon the action of a wider interest in the state and its functions on the part of the people, and further upon the idea, constantly becoming clearer, that the state is a means to an end. Still, the advocates of socialism, various as they are, regard the state as a final form of social organization; but in justice it should be repeated that the form and functions are materially different from those now devolving upon the state.

In the main, the problems have fallen, so far as their evil effects are concerned, upon the wage-earners, tho here and there are small producers and merchants who, because of a trust organization or the high wages and exactions of trade unions, have lost their places in the business and trade of the community. Nevertheless, whatever the difficulties or whatever the class upon whom the burden may have fallen, the fact is that the form of organization is largely to blame for the serious complications now so clearly seen. Industry on its mechanical side has developed faster than its administration and management, monopoly has grown much more rapidly than the powers and organization of the state, and the same may be said of private property, railroads and the other institutions engaged in producing distributing commodities. The control of these factors is, in the United States and England, where male suffrage exists,

in the hands of the class suffering from the evils. This is, however, but a nominal control, for the actual solution of the problems involved can be attained only under rational guidance, even tho the management and direction of the government may be in possession of the wage-earner, for the difficulties will appear in but another and more aggravated form if not met in a scientific and non-partisan way. And if the solution carries the state into socialism, individual liberty is materially jeopardized by what must ultimately be an oligarchy of power. More and more the situation clears and it is seen that a radical departure from fundamental principles is impossible; the solution must be attained by working out from the existing conditions and modifying them.

A Statistical Study in the Influence of Environment*

GEORGE R. DAVIES,

*Instructor in Sociology and History, University
of North Dakota*

THE question of the relative strength of hereditary and environmental factors in the determination of a career is one that in years past has evoked more heat than light. It is true that those who engaged in the controversy attempted inductive studies, and approached facts with an honest purpose of discovering the truth. But their studies being based on nothing more than casual observation could not reach definite conclusions. The difficulty was that owing to the variability of human nature it was always impossible to say in any individual case just what hereditary factors were present, hence the degree to which circumstances were really determinative could only be conjectured. In practise, therefore, each disputant drew his own conclusions in the light of his preconceived theories, and the entire debate fell into disrepute. This result was the more unfortunate in view of the fundamental importance of the question to such vital sciences as education and eugenics; and it is therefore a matter of congratulation that a method of approach has of late been developed which has already led to significant conclusions, and which offers the means of carrying the investigation still further. The new method consists, in brief, in the study of wide ranges of statistics by means of suitable mathematical operations that have been elaborated for the purpose. As a result of these developments the old question of the interrelation of heredity and environment approaches a scientific standing.

The new method of approach has, in the main, developed from the biologic study of the laws of heredity. About 1900 the Mendelian law was rediscovered, and investigation went forward rapidly. Mendel's law is to genetics what the atomic theory is to chemistry; in particular it is important in that it provides a mathematical explanation for occurrences that formerly were regarded as due merely to uncertain tendencies. But more important to the question in hand was the development of the biometrical study of heredity, of which Galton may be regarded as the founder and

*This article is a summary of Mr. Davies' thesis recently submitted as a portion of the work required for the degree of Doctor of Philosophy.

Professor Pearson at present the most representative exponent¹. The biometricians have adapted the theory of statistics to their field of work with great success. The most important of the mathematical operations that they have developed and used is the computation of the so-called coefficient of correlation,—a means of determining precisely the extent of 'agreement existing between two sets of related data. With the aid of this mathematical tool it has been found possible to measure, far more precisely than it could be done before, the intensity of ancestral influences. It was found, for example, that such physical characters as height and weight, tho transmitting with great variability, showed a dependable regularity when a large number of cases were concerned. Just as the insurance actuary found that the duration of life, so uncertain for the individual, became a matter of predictable regularity when dealt with in the mass, so the biometrician discovered laws of heredity thru the adequate handling of extensive data.

As a result of the successful study of the transmission of physical characters, attention naturally turned to the investigation of mental and moral traits in human heredity. Professor Pearson and his co-workers² easily showed that intellectual ability exhibits a mesurable intensity of inheritance, much as physical characters do. Their proof, to be sure, sometimes fails to convince owing to the difficulty of discriminating between biological and social heredity, yet on the whole they have established their case. Dr. F. A. Woods, in his elaborate study of royal families³ has given very conclusive evidence of the same fact, and has further extended his proof to include moral qualities. By computing correlations he has shown that both mental and moral traits are transmitted, with a lessening degree of intensity in successive generations. He does not claim, of course, that results could be predicted in any individual case, but rather that in the groupings of large numbers of cases results regularly appear that can be interpreted only as indications of ancestral influences. Other studies in the same direction might be cited, notably the investigation into the transmission of feeble-mindedness⁴, but probably enough has been said to suggest the nature of the work that has been done.

Because the new methods have been developed and applied in

1. Doncaster, *Heredity in the Light of Recent Research*, Chapter IV. (Cambridge, 1911).

2. *Eugenics Laboratory Memoirs*, London,—particularly No. 1, by Schuster. Also Whetham and Whetham, *Introduction to Eugenics*, page 10. (London, 1912.)

3. F. A. Woods, *Mental and Moral Heredity in Royalty*, (New York, 1906).

4. e.g., Goddard, *The Kallikak Family* (New York, 1912).

large part by those who were particularly interested in the biology of heredity, it is but natural that environmental influences, particularly those of a social nature, should be somewhat overlooked. Thus it is that the new science of eugenics, being the accredited spokesman, for modified breeding methods, and having at command the new data bearing upon heredity, has generally come to stand for the extreme biologic view. Eugenists have readily adopted the theory—so acceptable to the aristocrat—that social classes are formed by the sifting out and elevation of the capable and valuable stocks,—stocks that in general breed true to their specific ancestral abilities, as do the lower classes to their disabilities.⁵ When ability chances to appear in the lower classes it is considered either a reversion due to ancestral crossings with better strains, or else a fortuitous mutation; and it is taken for granted that such ability soon finds its appropriate level in some upper stratum of society. There is no place, therefore, for “mute inglorious Miltons” in the philosophy of the rigid eugenicist. In his estimation the various circumstances of home, social class, and locality count for next to nothing. Possibly this statement of the point of view of the eugenicist will be regarded as exaggerated, and of course it is true that opinions within the science depart from it somewhat. But it certainly was the view held by Galton,⁶ and today it appears and reappears with greater or less distinctness.

As an example of the eugenicist's emphasis on biologic to the exclusion of other factors, the following item may be given.⁷ A recent writer states that not only the tendency to suicide, but even the predilection for a particular means—whether by shooting, drowning, or poisoning—is transmitted by heredity. He gives as proof the case of a certain family in which three members in successive generations attempted suicide by cutting the left arm. That hereditary forces actually determine so specific a matter as the cutting of the left arm to the exclusion of other means of suicide, would scarcely be claimed by anyone at all familiar with the psychology of suggestion. Such a short-sighted view is the natural result of the fact that the science of eugenics, together with the new methods of investigation in heredity, has been developed mainly from the biologic point of view by persons unappreciative of or unfamiliar with psychological and sociological interpretations.

Where subtle forces so delicately intertwine as in the development of the individual, the whole truth can never be arrived at while

5. Jordan, *The Human Harvest* (Boston, 1912). Also Bateson, *Biologic Fact and the Structure of Society* (Oxford, 1912).

6. Galton, *Hereditary Genius*, page 34 (London, 1892).

7. Whetham and Whetham, *Introduction to Eugenics*, p. 24.

effort is centered mainly upon the measurement of any one set of factors. Ancestral influences themselves can only be fully appreciated when the deflecting forces of environment are also traced and measured. Hence the question arises, why do not biometricians and eugenicists turn their new methods of investigation directly to the study of environmental influences, instead of always making heredity their central theme. Perhaps they feel that genetics alone is their field of study. If this is the case, it is to be hoped that their work may be balanced by complementary studies on the part of related sciences.

As the matter stands today, scarcely enough work has been done on the influence of environment to demonstrate that the new method of approach is applicable to the subject. The monumental statistical work of Dr. F. L. Ward that appears in his *Applied Sociology* stands almost alone, and even there little advantage is taken of the development of mathematical methods. Perhaps a summary of Dr. Ward's work may here be in order, particularly since the brief study that forms the body of this paper is in some respects modeled upon it.

Dr. Ward takes the position that while individuals vary greatly in their capacities, and while genius is a somewhat rare phenomenon, yet that the maturing of potential genius and talent into actual achievement is a matter that depends very strictly upon such environmental factors as home influences, education, and social class. In proof of his contention he presents many individual cases, but relies mainly upon a large body of statistical evidence that he has borrowed from certain French sources, and that relates to French men of science and letters. To put the matter briefly, these figures show that there is a decided correlation between density of population in any given district and the production of great men.⁸ That is, a densely populated region produces a far larger percentage of great men than does a sparsely settled region. It is shown in detail that the decisive factors are the leisure resulting from wealth, the opportunity afforded by social standing, and the proximity to educational influences; and that such race differences as exist in France do not affect the problem. Dr. Ward thinks that social classes, being the modified continuation of conquest-formed castes, are in the main artificial contrivances not harmonizing with the innate variations in individual capacities. He concludes by suggesting the obvious advantage that society would gain by developing the potential genius in the classes now so largely cut off from opportunity.

In only one particular does Ward's study fail to be entirely con-

8. L. F. Ward, *Applied Sociology* (New York, 1906). Dr. Ward has not computed the correlation, but the coefficient may be shown to be 0.53 ± 0.05 .

vincing. Biologists make the criticism that he has failed to take into account the selective action of favorable environments. They say that the higher proportion of genius in densely populated regions may plausibly be accounted for by the fact that cities have for generations attracted men of ability, so that at length urban population has come to be of a superior quality. In this way, they say, the statistics from France may be interpreted on entirely biological grounds. Apparently this possibility had not occurred to Ward; at least he seems nowhere to have met the objection. And it is probable that the data at his command did not allow of any convincing answer.

It has occurred to the writer that a somewhat similar investigation might be made for the United States as Ward has developed for France, and that possibly the methods used by biometricians might be employed, at least in part, to make the results more definite and conclusive. Accordingly the following study has been made, the statistical summary of which appears in the final pages.

The purpose of the study is to discover whether in the United States the production of noted men is correlated in any marked degree with density of population, and with one or two other associated environmental factors. The question is somewhat the same as the one commonly asked: Does the great man come from the country or the city? But in view of the available data the question is broadened to read: Are noted men more likely to come from the crowded urban states, with their superior wealth and opportunities, than from sparsely settled states? More precisely the question is: Do density of population and such other environmental influences as may be conveniently measured correlate with percentage of births of noted men in the United States, the state being taken as the unit; and if so, may the correlation be considered a measure of the influence of environment?

The first difficulty to be encountered is the question of just who are the great men. It will not do to take merely the few whom all might agree upon, since the crux of the correlation method is the use of numbers sufficiently large to cancel the numerous chance forces that weigh so heavily in individual cases. But after all, the question is not one requiring a precise answer. With proper safeguarding any large list of prominent persons will do, even tho exceptions might be taken to a considerable percentage of the names included. For there must be borne in mind in this connection, as well as in the discussion to follow, a principle applicable to correlation work. The principle is that the erroneous inclusion or exclusion of material from the data, arising from chance and not from any selective guidance, must always

operate in the long run to lower a correlation.⁹ As an illustration of the principle, suppose that one has picked out the large and small grains from a given sample of wheat. The large and small being kept separate, stand out as two distinct types. Let a few handfuls of wheat like the original sample be thrown into the selected lots, and the contrast begins to be blurred. Let a larger quantity be thrown into each, and the contrast practically disappears. Just so in the handling of data to discover correlations. Some miscellaneous errors may be included in the data, but any correlation that appears will become evident in spite of chance errors of inclusion or exclusion and never because of them; just as any marked contrast between the two lots of selected grain will never be the result of random handfuls that may have been thrown in. The principle is of the greatest importance in estimating the value of such work as that of correlation, which in fact rests on the mathematical regularity of the operation of chance.

It has therefore been concluded that for the purpose at hand the well-known *Who's Who in America*¹⁰ furnishes suitable material. At the outset some investigation of the method employed in compiling this work was made, but a discussion of the subject is rendered unnecessary by the use of collateral sources which, tho less comprehensive, are more authoritative. After the problem was worked out on the basis of the volume just mentioned, recourse was next had to *Who's Who in Science*,¹¹ a standard work likely to meet acceptance, since the task of picking out leaders from a specific field is easier than from a general field. Lastly, to make assurance doubly sure, the problem was reworked from the data compiled in *Cattell's American Men of Science*.¹² In this volume Dr. Cattell has listed after the most careful process of selection the thousand foremost American leaders in science, and has succeeded in compiling a work of recognized authority. Only one objection can be made to the use of the last two books; namely, that the number of names included is relatively small, making a correlation more difficult to discover. But certainly any principle that might be established on the concurrent authority of the three works could not be discredited on the ground of inadequate or invalid data.

It will be impossible in the compass of so brief an article to give any complete exposition of the methods of handling the data. The statistical tables, with the accompanying brief explanations, must be

9. Whipple, *Manual of Mental and Physical Tests*, pp. 41-42 (Baltimore, 1910).

10. *Who's Who in America*, Vol. VII., 1912-1913 (Chicago, 1912).

11. *Who's Who in Science* (New York, 1912).

12. *Cattell, American Men of Science* (New York, 1910).

allowed to speak for themselves. Discussion will be confined in the main to the significance of the findings.

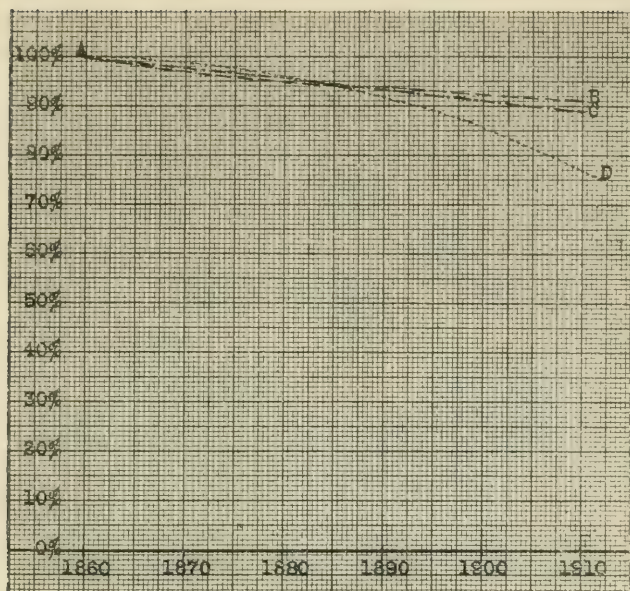
Before taking up the correlations in detail, attention must be directed to one or two points regarding the environment that is being measured. A glance at the tables will show that density of population and other environmental factors are measured at approximately the average date of birth of the noted men, and that the measurement so taken is regarded as indicative of the formative environment thru the years of immaturity. It might be questioned whether this procedure is allowable in view of the shifting population of the United States, and the rapidly changing conditions. It is therefore necessary to ascertain the relevant facts.

The number of persons who grow up in the locality in which they are born is much larger than is popularly supposed. Recent censuses (1870-1910) find only from twenty to twenty-four per cent of the native population outside of the state of birth. Of course a part of those remaining are children, some of whom will move before maturity; yet not a large proportion, since migrants are more likely to be adults than children.¹³ It is therefore safe to assume that from one-half to three-quarters of the population grow up in the same state in which they are born. Of those who move, a good part do not go farther than adjoining states, where, as may be seen from the tables, the conditions studied do not on the average vary so very much. In 1910, 85.5% of the population were found living in the same group of states in which they were born. Most migration, even that which travels great distances, follows occupational lines; hence the environment is not likely to be essentially changed. It seems therefore to be justifiable to take the conditions of the state of birth as indicating the general features of the formative environment. And here the principle concerning errors creeping into the data of correlations finds an application. The cases in which migration has operated to materially change environment can only reduce correlations, not produce them; and it may be taken for granted that any correlation that may be found in the accompanying data, is indicative of a really stronger causal relation than in fact exists.

The next preliminary question concerns the stability of the environment. It is evident that if there is a great rearrangement of the states within a period of two or three censuses when ranked for any given condition, then the measurement of the environment at

13. For the case as to foreign immigrants see Abstract of Thirteenth Census of United States, pp. 124-125.

GRAPH I.



One hundred per cent is arbitrarily taken to represent the ranking of the states in 1860 in respect to environment. Then the line AB represents the tendency to fall away from this ranking in respect to density of population thru succeeding years as indicated; similarly the line AC shows the change in per cent of illiteracy, and AD in elementary education. Based on Table I, correlations 21, 22, 23, 27, 28, and 30.

the time of the birth of the great man will not apply thru the period of his development. Of course it is taken for granted that in any locality there will be great environmental changes due to the general progress of the country; but since states are here mesured merely by the rank they occupy, the only pertinent question is as to the relative changes. The answer to the question is summarized in Graph. I which shows that even in the entire period from 1860 to 1910 no very great change has occurred. Even the mild degree of change that appears to have taken place in the ranking of the states in elementary education is probably exaggerated, due to the impossibility of getting a uniform standard of mesurement. The results are decisive enough to put aside all doubt of the relative stability of the mesured factors of the environment during the period of the development of any individual.

A further question may be raised concerning the census to be selected as the basis of the work. On the evidence of 756 names

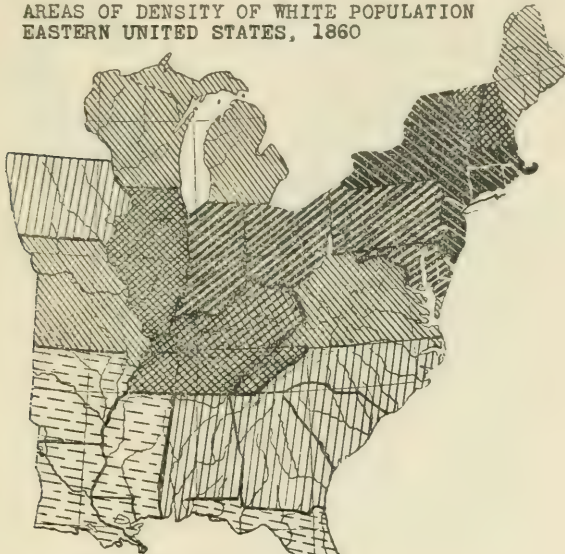
taken at random, *Who's Who in America* shows that the "modal" age of the persons included in the list of notables is nearly fifty; hence that the census of 1870, and particularly that of 1860, would come close to the average date of birth. A difficulty arises, however, out of applying to all states generally any specified census figures on population as the base in computing the percentage of great men produced. A state at the time of the census selected may be in the first stage of a very rapid growth, and its population may then be so relatively small that the percentage of noted men computed on it as a base will be disproportionately large. It may be suggested that the noted men should be sorted out according to the date of birth, and handled statistically in several groups, but this would be an almost impossible task in such a mass of data. It has, however, been attempted in part in connection with the names from *Who's Who in Science*, where a restriction to two decades has been made. In the preparation of the data the question was carefully worked out as to just what effect the taking of a state at an earlier or a later stage of its history would have upon the standing of the state, but the conclusion was reached that by two simple precautions all possible danger of serious error might be avoided. In the first place several different censuses might be used, since an early census was found to favor new states and a late one older states. In the second place the study might be limited in the main to states that have past the first stages of their growth, as for example those that are included in as early a census as that of 1840. These precautions have been taken; and in view of the decisive results obtained, any further precautions seem unnecessary.

For the benefit of those who are not familiar with coefficients of correlation, a brief statement of their meaning may be in place. It has already been stated that the computation of a correlation means the measurement of the extent of agreement existing between any two related sets of data. The relationship as found is expressed by a coefficient that may range in value from one to minus one. The former means complete agreement, zero means such a lack of agreement as would usually result from mere chance, and minus one means that the data compared are negatively related. For example, if the states were found to rank in exactly the same order for density of population as for fertility in noted men, the correlation would be said to be one; if they ranked in the reverse order the correlation would be said to be minus one. Zero would indicate a promiscuous order showing no distinct agreement or opposition. The general meaning of intermediate values is of course apparent. More







precisely, it is assumed from experience that a coefficient falling below 0.30 cannot be interpreted as meaning any decisive causal relationship, while anything above 0.50 is certainly decisive, particularly if the so-called probable error (the probable limit of variation from the given result by the use of more cases) is not more than one-sixth of the coefficient.¹⁴

On the face of the results, the correlation between density of population and fertility in men of letters is very decisive. It will be seen from the tables that for 1850 the coefficient is 0.60 ± 0.08 ; for

AREAS OF DENSITY OF WHITE POPULATION
EASTERN UNITED STATES, 1860



White Population
per Square Mile:

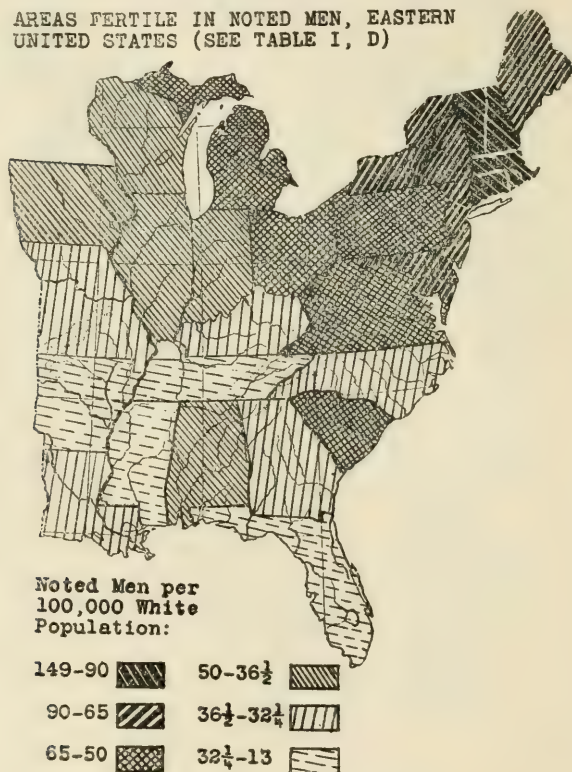
148-75		19-12½	
75-35		12½-8	
35-19		8-1	

1860 it is 0.72 ± 0.06 ; while for 1870 it is 0.76 ± 0.05 ; or, if 46 states are included, 0.70 ± 0.05 . There are, however, two objections that may be immediately anticipated. It may be claimed that the results are in the main due to conditions in the southern states, where the negro, tho incapable of contributing to the noted men, has yet been included in the total population. In another computation,

14. King, Elements of Statistical Method, p. 215 (New York, 1912).

therefore, the negro has been left out of account with the result that the coefficient based on the census of 1860 is found to be 0.74 ± 0.06 , two points higher than it was previously. It is clear then that the inclusion or exclusion of the negroes is not a significant factor. Still, it may be claimed that the correlation is due to other sectional contrasts between the North and the South; or, on the other hand, that it is due to contrasts between new and old states exclusively. Consequently a grouping has been so arranged as to compare first Northeast and Southeast, then Northeast and Northwest, so far as the states in the census of 1840 extended. On the basis of

AREAS FERTILE IN NOTED MEN, EASTERN UNITED STATES (SEE TABLE I, D)



the census of 1860 it was found that in both cases a decided correlation existed (see table I, Cor. 32 and 33). The coefficients previously mentioned were therefore not a measure of a peculiarity limited to one area alone.

When the computation is based on Who's Who in Science, and on Dr. Cattell's list of great scientists, the results are changed but

little. In the former case the coefficient based on the census of 1860 is 0.60 ± 0.07 , and in the latter it is 0.59 ± 0.10 . Tho these figures are a little lower than the preceding, they are still very decisive.

It is therefore evident that a marked relationship exists between density of population and fertility in men of note,—that for some reason a densely populated state is more favorable to the production of prominent men than is a sparsely settled state. A further study of the data is now called for to determine if possible the factors that give significance to density of population. Economic and cultural influences in the environment will be given some attention, then the possibility of a biological cause will be considered.

It is of course clear that density of population in itself is not the true cause sought; but rather, if the cause is environmental, it must consist of certain influences associated therewith. Density undoubtedly means the presence of cities, and cities mean in turn many economic and cultural influences. It is worth while, then, to compare rank in urban population and in noted men. It was not found convenient to rank the states for the percentage of urban population in 1860, as the figures were not available; but those for 1890 were obtained and were correlated with fertility in noted men as measured on the basis of the census of 1880. The coefficient was found to be 0.82 ± 0.04 . The height of the measure in spite of the handicap of later censuses indicates the importance of the city environment, inasmuch as density of population taken alone may in some instances mean thickly settled rural districts. Another proof of the importance of cities may be set forth. The states have been ranked in accordance with the amount of manufacturing to the square mile, and this ranking has been correlated with fertility in noted men,—both on the basis of the census of 1860. The result is a coefficient of 0.89 ± 0.03 for *Who's Who in America*, 0.76 ± 0.05 for *Who's Who in Science*, and 0.80 ± 0.05 for *Cattell's*. Manufacturing states are of course the ones in which great cities have grown up, and in which wealth and cultural advantages have developed.¹⁵ It is evident that the opportunities an urban environment affords are very closely associated with the production of men of note.

Before leaving the question of the efficacy of a city environment, it may be observed that there is evidence to show that the natives of large cities do not achieve fame as readily as do the natives of the neighboring smaller places and rural districts. Dr. Cattell gives

15. Clearly shown by correlation 31, which gives a coefficient of 0.86 ± 0.03 , in spite of the divergence that must result from taking censuses thirty years apart.

statistics¹⁶ that show that one-seventh of the population, comprising the inhabitants of the largest cities, produces 26% of the great scientists, or 1.83 times its pro rata share. Now the data on which the appended tables are based show that a similar percentage of the nation, comprising the total population of the most thickly settled states, can be credited with from two and one-fourth to three times its pro rata share of great scientists. That is, the inclusion of the contiguous smaller places and rural districts with the large cities results in a better showing. It seems then that under American conditions the great man is most likely to be born on the farm or in the town that lies within reach of the great city; the next most probable birth-place is the great city itself; while the least probable is the town or district remote from the large cities.

Attention may now be directed to the educational factors in the environment. While it is not possible to gage accurately the efficiency of the common schools of a generation ago, material may be gathered from the census of 1860 upon which an estimate may be based. The total number of children attending school is given for each state, and this number divided by the number of children of school age¹⁷ serves as a measure of the relative amount of elementary education. A second indication of educational efficiency is found in the extent of illiteracy among the native inhabitants, which, tho not directly stated, is readily estimated from the census data. In both cases, in deference to the southern states, white population only has been included. Finally, the two measures have been combined into one index giving each equal weight, and the states ranked in accordance with this index. It is found that common school efficiency as thus determined correlates markedly with fertility in noted men, the coefficient being 0.77 ± 0.05 . In the case of the scientists the correlation is still more marked. The computation on the basis of *Who's Who in Science* gives a coefficient of 0.86 ± 0.03 , while on the basis of Dr. Cattell's list it reaches the remarkably high figure of 0.93 ± 0.02 . Such a very decisive correlation is a significant proof of the value of public education as a means of discovering genius.

It is college education, however, that is presumably most directly related to the preparation of leaders. Data showing this relation were sought, but the census of 1860 was found to be disappointing, as it confessedly has been unable to draw the line between academies and colleges. As a result the statistics of higher education for 1860

16. Cattell, *American Men of Science*, page 559.

17. The age groups five to fifteen, both sexes, were added to form this divisor.

are misleading. While it ought not to be difficult to establish from other sources the association of the greater centers of learning with the areas of dense population, and hence with the production of noted men, it has been found more profitable to approach the matter from another direction. An attempt has been made to answer the question of the relative success of college and non-college men in the attainment of fame.

The statistical table in *Who's Who in America*,¹⁸ revised slightly to allow for those who have not sent in educational statistics, shows that 8,985 persons out of the total of 17,546 listed have graduated from colleges giving baccalaureate degrees.¹⁹ This means that 51% of the noted persons are college graduates, while many more have attended college. It is not stated whether the term college graduate implies a baccalaureate degree, or whether graduates of other courses not leading to such a degree are included. Random sampling of a considerable number of cases shows, however, that college graduate substantially always means the holding of the A.B. or equivalent degree, with very often a higher degree also. It might be thought that the liberal college course was mainly confined to the traditional learned professions, but this is not entirely the case, as the following table shows:

PROFESSIONS REPRESENTED IN WHO'S WHO IN AMERICA, SHOWING PERCENTAGE OF COLLEGE GRADUATES²⁰

Profession	Per Cent. of Total	Per Cent. College Graduates
Lawyers -----	17.6	52
Doctors -----	7.7	49
Ministers -----	11.6	81
Technical:—		
agriculturists, engineers, etc. ----	6.4	46
Artists and musicians -----	5.2	10
Educators -----	22.*	100*
Authors -----	20.*	46*
Business men -----	7.5*	29*
Miscellaneous -----	2.*	--

18. Pages xix-xxii of introduction.

19. Includes a relatively small number of graduates of United States military and naval academies.

20. Data from *Who's Who in America*, page xxii. of introduction, except starred items, which are estimates based on random sampling; in the same work.

The correlation of a liberal college education with the attainment of distinction cannot be brought to light, however, without using the success of non-college men as a basis for comparison. In order to discover the latter, it will be necessary to follow thru the statistics of a single year age group. For this purpose the group of persons now at the "modal" age have been chosen, as at that age the maximum of attainment with the minimum of elimination by death occurs. Without attempting to give in detail the method by which the results have been reached,²¹ it may be stated that of persons born in 1861 in the United States there were living at about the age of college entrance a little over one million, of whom 5,734 graduated from college. Of this number 5½% found their way into Who's Who. Of the non-college group only 0.028%, or about 1 in 3,600, found their way into Who's Who. Comparing these ratios we find that the chances of attaining distinction are 196 times greater for the college man than for the non-college man. Or, put in terms of a correlation, college education and the attainment of distinction give a coefficient of 0.98 ± 0.001 . It is evident that while college education will not insure distinction, it is very nearly a necessity for the attainment of it.

It is sometimes questioned whether college education stands in a causal relation to the attainment of distinction; or whether, on the other hand, it may not be merely a tradition on the part of the capable and ambitious. In view of the overwhelming correlation of college training and success, it seems very probable that the relation is causal. Of course if we had an hereditary aristocracy that held a monopoly on prominent positions, the theory that college going is merely a conventionality might have some grounds; but such is not the case. Competition for high places is keen; the sons of the middle and lower classes enter the race and often win. In unconventional America, if there were a shorter and easier way to fame than the way of higher education, energetic young men would have found it and beaten it into a highway. Further, certain items of direct evidence may be adduced. Slossen²² says that fraternity men in a University which he regards as typical show 28% of failures in scholarship as compared with 12% for non-fraternity men. Since the fraternities of the larger Universities tend to be made up of the wealthier class of students, this is evidence that wealth and scholarship are more

21. Data from age distributions (smoothed) in census of 1880; Statistical Abstract of U. S.—Bureau of Statistics—1911, p. 752; Bulletin 451, U. S. Bureau of Education,—Age and Grade Census of Schools and Colleges, pp. 138, ff.; and Who's Who in America,—introduction. The computation is subject to minor criticisms on account of lack of definite data, but it cannot be materially in error.

22. Slossen, *Great American Universities*, p. 127 (New York, 1910).

likely to be related negatively than positively. Now, it has been incontrovertibly shown that success in college goes with success in later life. VanDyke writing in *Scribner's Magazine* (September, 1912), shows that 50% of the first honor men from the leading colleges gain a place in *Who's Who*, while of second honor men 33% attain a like place. As has been shown on a preceding page, 5½% of college men in general attain this distinction. Such evidence indicates that the men who are winning the prizes both in college and in after life are in large part from the rising classes who would be the least likely of all to follow blindly an expensive tradition. Considering again that the chances in favor of the college man reach the overwhelmingly high ratio of 196 to 1, we cannot avoid the conclusion that the colleges, in spite of their admitted imperfections, are a very important environmental factor in the attainment of eminence.

GRAPH II.

PERCENTAGE ATTAINING MENTION IN WHO'S WHO IN AMERICA:

- A. Of Persons not Graduated from College, 0.03%
- B. Of All College Graduates, 5.5%
- C. Of Graduates Taking Second Honors in College, 33.3%
- D. Of Graduates Taking First Honors in College 50%

A final question that demands consideration is whether the correlations that have been set forth in this paper may not be explained,—as biologists claim Ward's figures may be explained—by the selective action of favorable environments. That is, may not the city have acted as a magnet drawing to itself the most capable strains of the surrounding population, from whose superior capacity has developed in later generations the relatively high percentage of noted men?

There is considerable evidence that such is not the case. To begin with, the great cities of the United States are of very recent growth;²³ the frontier of one generation becomes the teeming urban region of one or two generations later, peopled by the descendants of the pioneers, and by later immigrants. But the selection hypothesis requires a considerable period thru which selection may do its work effectively; for in the first place it must be remembered that the able young man going to the city and there winning fame is credited not to the city

23. Abstract of Thirteenth Census, p. 93.

but to the environment of his birth; and in the second place biological principles show that the changing of the innate characteristics thru selection is only accomplished laboriously and slowly.²⁴ Further, the selection hypothesis is greatly weakened by the fact previously shown that it is not so much the stock of the great city that is fertile in genius as the stock of the adjoining smaller places and rural districts. There is no reason to suppose that the latter localities have profited by a selection process; rather, it is very likely that they have lost by continued migration to the city. And still more conclusive, as affecting the present study, is the fact that most of the migration from country to city takes place within the limits of the same state, or neighboring states.²⁵ Since the unit here taken is the state, and since in general adjoining states do not differ widely in density, such selective movements of population could scarcely at all affect our correlations. That is, the selective process which, according to the biological theory, accounts for the superiority of densely populated regions occurs mainly within the limits of the units here adopted, causing for each unit about as much loss as gain, and therefore not affecting materially its genetic standing.

The data at hand can be made to show whether or not the city draws from other states the men of ability who attain fame. It is evident that if men who attain distinction have been merely keeping pace with the general movement of the population westward, a correlation between density of population and percentage of noted men now resident in various states should give about the same coefficient as the corresponding one based on the place of birth. If the correlation based on residence shows an increase over that based on birthplace, a tendency of noted men to gather in densely populated states is indicated; a decrease would indicate the reverse tendency. Now, the correlation for residence and density when forty-six states are taken is 0.18 ± 0.10 ; with the twenty-nine older states it is 0.64 ± 0.07 . These results are on the basis of *Who's Who in America*. Dr. Cattell's list gives a coefficient of 0.71 ± 0.06 . Compared with corresponding correlations on the basis of birthplace, these coefficients show a decrease of 74% and 11%, and an increase of 20% respectively. A decrease, as shown above, indicates movement of able men toward sparsely settled states in excess of the movement of the general population, while the increase indicates the reverse. It may be the case, however, that the decided figure given in the first instance, where forty-six states are dealt with, is due to the fact that in the very new

24. Castle, Coulter, et al., *Heredity and Eugenics* (Chicago, 1912).

25. Abstract of Thirteenth Census, page 169.

states immigrants rise without much competition into official positions that give them merely an *ex officio* place in Who's Who. However, the percentage of such persons who are admitted merely because of official position must be very small indeed, and could not very materially affect the results.²⁶ On the other hand the increase in the case of Dr. Cattell's list of scientists is probably due to the fact that the number of residents is augmented 15% by the inclusion of the foreign born great scientists, who are far more likely to be found in the centers of population than elsewhere. Besides, the scientist is dependent upon the laboratories and other costly equipment met with in cities, and that cannot easily be taken into the wilderness as can, for example, the implements of the author. Hence it is to be expected that the scientist will seek the centers of population more than will other men of note. On the whole, therefore, it is clear that if there is any movement of noted men in contrast with the usual drift of population it is away from rather than toward the more densely populated states. Certainly there can have been no such selection toward populous states as would explain the greater production of noted men in the latter. We are forced to the conclusion, then, that the decided correlations that have been discussed are real measurements of environmental influences.

It must be admitted that the foregoing study has been indiscriminating in that it has lumped together various kinds of talent, from the sensitive intellectual type that shrinks at the first touch of adversity, to the egoistic leadership type that boasts of its power to conquer exaggerated obstacles. Doubtless as genetic studies develop we shall be able to distinguish the different types and their varying reactions. But it seems that sufficient has been done to show that the methods that have been invented by the biometricians are adaptable to the problem at hand, and that the position of Galton relative to the fixity of hereditary characteristics must be considerably modified to allow for the powerful force of circumstances.

In conclusion, the social significance of the influence of heredity may be briefly discussed. In the human species nature has at length developed a plastic organism having great adaptability thru intelligence to progressively changing surroundings.²⁷ The psychological

26. Who's Who in America, page ix. of introduction.

27. Compare Fiske's well-known work on The Meaning of Infancy; also Bergson's discussion of instinct and intelligence, and the meaning of the latter in evolution, in his Creative Evolution. On the other hand, an authority on heredity—often quoted by eugenicists—suggests that creatures higher in the evolutionary scale become more and more determined by heredity, basing this conclusion on the fact that he has disclosed a correlation of 0.30 or under to hold as to mental or moral traits in successive generations. See Warner, American Charities, p. 114 (New York 1908).

structure that we call society has made progress not so conspicuously by the operation of natural selection as by that liberation of the mind from the weight of custom and tradition which takes place in the stress of crowded centers of human activity. Hence the importance of the city in the development of talent. Progress, then, at least up to the limit of the native capacity of the race, depends on the one hand on the incentive and opportunity afforded to the man of genius to work out mental achievements, and on the other hand upon the aptitude and opportunity for assimilating these achievements on the part of the mass of the population.²⁸

Our study has shown that men of ability are developed by the influences of certain environments, tho there is every reason to believe that there is as much available talent elsewhere in the population. Allowing for the contingency that a part of this undiscovered ability may have been usefully engaged in inconspicuous occupations, as in the pioneering of a new state, yet there is indicated a tremendous social waste of potential talent. The conclusion is evident. We must agree with Ward²⁹ that it is the duty of society so to organize the environment that all available talent shall be utilized for leadership, and so to foster education in its broadest aspects that intellectual achievements shall be assimilated by the mass. Only the selfish caste spirit, that fears the competition of superior ability, stands in the way of so enlightened a public policy.

Referring again to the eugenic propaganda, a further defect other than the neglect of the environmental factor may be noted. The defect is that scarcely any effort has as yet been made in so fundamental a matter as the development of standards of eugenic selection. It has been uncritically assumed that success in the complex, semi-organized competitive struggle of society is sufficient as a standard of eugenic valuation. "Life is the most comprehensive test," one writer puts it.³⁰ Yet success, as measured by a society scarcely out of the domain of unfettered natural law consists largely in the ability to acquire; the property test is the final current criterion of success. The fallacy involved in adopting such a criterion as a social standard may be seen by reference to the farm, where eugenics has long been in successful operation. The farmer who should adopt the standard that the eugenists propose would be led to select the weed in place of the wheat. However, eugenics is at present doing a good service

28. Compare Baldwin's theory of social development, in his *Social and Ethical Interpretations*, Book II. (New York, 1906). See also Hobhouse, *Social Evolution and Political Theory*, Chap. 2. (New York, 1911).

29. Ward, *Applied Sociology*, Chap. XIII.

30. Gesell, *The Village of a Thousand Souls*, *American Magazine*, Vol. LXXVI., p. 12.

in pointing out the necessity of eliminating the decidedly defective classes, tho even in this connection naïve application of superficial tests of native ability is to be deprecated. But for any comprehensive program beyond this negative one we must await the development of eugenic standards in harmony, not with individualistic desires, but with social demands. A society composed of cultured bond-holders, such as present standards of fitness imply, is somewhat difficult to conceive of, and still more difficult to attain by the elimination of life's economic failures.

The purpose of this paper is not, however, to disparage the eugenics movement, but rather to suggest what appear to the writer to be well-grounded criticisms. It is clearly recognized that the principle of eugenics is of the most fundamental importance to society. Most present-day evils ultimately hark back to the workings of natural selection, being but various phases of the cruel and wasteful struggle that nature imposes on her offspring.³¹ Artificial selection must eventually replace natural selection as the natural social forces are brought under control.³² The peace, order, and improvement that come to domesticated animal and plant life in the well-managed farm will yet be achieved by humanity as gradually, with a widening intelligence, a social consciousness comes to rule.

31. See the review of an article by Dr. Woodruff on *The High Cost of Living*, in *Current Literature*, Vol. 53, pp. 537 ff.

32. Hobhouse, *Social Evolution and Political Theory*, Chap. 3.

CORRELATIONS FROM PRECEDING DATA. SPEARMAN METHOD, BUT COEFFICIENT CONVERTED TO PEARSON'S "r." (Letters refer to specified columns in table.)

1. A&B,	0.60 ± 0.08	25. H&K,	0.60 ± 0.08
2. C&E,	0.88 ± 0.03	26. H&L,	0.96 ± 0.01
3. C&G,	0.72 ± 0.06	27. I&R,	0.96 ± 0.01
4. C&L,	0.89 ± 0.03	28. I&X,	0.89 ± 0.03
5. D&H,	0.74 ± 0.06	29. K&R,	0.96 ± 0.01
6. D&I,	0.75 ± 0.05	30. K&Z,	0.75 ± 0.06
7. D&J,	0.59 ± 0.08	31. L&T,	0.86 ± 0.03
8. D&K,	0.77 ± 0.05	32. M&N,	0.69 ± 0.09
9. D&L,	0.84 ± 0.04	33. m&n,	0.55 ± 0.11
10. E&G,	0.66 ± 0.07	34. O&P,	0.76 ± 0.05
11. E&H,	0.77 ± 0.05	35. O&Z,	0.65 ± 0.07
12. E&K,	0.86 ± 0.03	36. P&R,	0.43 ± 0.10
13. E&L,	0.76 ± 0.05	37. Q&R,	0.78 ± 0.05
14. F&G,	0.59 ± 0.10	38. Q&S,	0.72 ± 0.06
15. F&H,	0.74 ± 0.06	39. Q&T,	0.82 ± 0.04
16. F&K,	0.93 ± 0.02	40. R&X,	0.94 ± 0.01
17. F&L,	0.80 ± 0.05	41. R&Z,	0.80 ± 0.05
18. F&U,	0.87 ± 0.03	42. S&T,	0.75 ± 0.06
19. G&I,	0.35 ± 0.11	43. U&V,	0.71 ± 0.06
20. G&K,	0.46 ± 0.10	44. W&X,	0.34 ± 0.11
21. G&P,	0.97 ± 0.01	45. W&Y,	0.64 ± 0.07
22. G&S,	0.94 ± 0.01	46. W&Z,	0.45 ± 0.10
23. G&W,	0.91 ± 0.02	47. Y&Z,	0.78 ± 0.05
24. H&I,	0.47 ± 0.10		

EXPLANATIONS:

A. Based on Who's Who in America, see page xxiii. of introduction. Number of living noted persons born in each state (irrespective of date of birth) divided by the population of the state according to the census of 1850. States then ranked from highest to lowest. This census was more than a decade earlier than the average age of the noted persons, but the computation was made for purposes of comparison.

B. The census gives the density of population in each state for each decade. See Statistical Abstract of the United States, 1911, pp. 52-53 (Bureau of Statistics, Washington). The census figures for 1850 have been ranked, as above.

C. Same as A except based on census of 1860.

D. Same as A except based on census figures for white population in 1860. See Statistical Abstract of the United States, 1909, pp. 46-52 (Bureau of Statistics, Washington).

E. Based on Who's Who in Science (Macmillan, 1910). A selection was made of all scientists born in the United States between 1850 and 1870. These were classified by state of birth, and the number for each state was divided by the population of the state in 1860. The ranking was then made as in other cases.

F. Out of a large list of noted American scientists Dr. Cattell has se-

lected with the greatest care the 1000 most prominent. From this 1000 he has selected the 867 native born, classified them by state of birth, and divided the number for each state by the population of the state in 1860. He also makes a tentative comparison with density of population, and it is noteworthy that tho he does not push the investigation very far he suggests practically the same conclusion as that arrived at in this paper. See Cattell, *American Men of Science*, pp. 553-559. On page 554 will be found the table from which the rankings in Column F have been prepared.

G. Same as B except based on census of 1860.

H. White population (as in D) for each state divided by area of state, and results ranked.

I. Not given directly in the census of 1860, but easily arrived at from the figures on illiteracy there given.

J. Total school attendance for each state was divided by the age group 5-15. White population only. Census of 1860.

K. The two preceding measures of elementary education were combined by multiplying the per cent. of literacy by the average school attendance for each state, and the resulting abstract index figures were ranked.

L. The capital invested in manufacturing in each state was divided by the area of the state, and the results ranked. Figures from the census of 1860.

M, N, m, n. In these columns the data used in preparing columns D and H were re-ranked for specified groups of states. The object was to discover whether the correlations previously found were due mainly to differences between North and South, or between East and West, or both.

O, P. Same as A and B except based on census of 1870.

Q. Same as A except based on census of 1880.

R. Based on census figures for illiteracy of native whites.

S. Same as A, except based on census of 1890.

T. Based on census figures for per cent. of urban population, by states.

U. Prepared from same source and in same way as under column F, except that here the classification is on the basis of the state of residence in 1900.

V, W. Same as B except based on censuses of 1900 and 1910 respectively.

X. Based on census figures for illiteracy of native whites.

Y. Number of noted men resident in each state has been divided by the population of the state. Data from *Who's Who in America*, page xxiii, of introduction, and census of 1910.

Z. Based on the ranking of the states in public education according to the Russell Sage Foundation investigation. See Russell Sage Foundation pamphlets, No. 124,—*A Comparative Study of Public School Systems in the Forty-Eight States* (New York, 1912).

NOTE: Specific references have not been given to the most accessible census material, inasmuch as it is readily found thru the census indexes.

For methods of computation see Whipple, *Manual of Mental and Physical Tests*, Chapter 3. The fraction $\frac{1}{2}$ appearing in the tables is due to the method of handling ties, as explained in Whipple's manual. The Spearman method of computing correlation has been employed, but the Spearman value has been reduced to the corresponding Pearson value by means of tables which Whipple gives. The Spearman method has been criticized as inaccurate in negative values, but the criticism has no application in the present case. The method has been checked in one or two instances by the computation of the Pearson products-moment coefficient, based not on the rankings but on the values from which the rankings are taken, and in many cases the Pearson method of rank differences was used. Another method employed as a check was one in which the states were "weighted" so as to give force to each in proportion to its population. In nearly every case it was found that the result by the more precise method was a little more striking than the result by the Spearman method.

It may also be worthy of note that the values on which the rankings are based show very decided differences. For example, in column A, the first rank is 6.7 times greater than the last rank; in column B it is 86.5 times greater; in column C it is 14.3 times greater, etc.

TABLE II.

States in 9th Census	A. Noted Men Born in State ÷ Popu., 1870 Rank	B. Noted Men Resident ÷ Popu., 1910 Rank	C. Density of Population 1870 Rank	D. Density of Population 1910 Rank	E. Elementary Education 1912 Rank
Ala.	33	39	24	23	46
Ariz.	42	15	44 ¹ / ₂	44	29
Ark.	43	45	29	28	41
Cal.	16	6	32	34	4
Col.	30	7	40	38	9
Conn.	3	3	4	4	5
Del.	8	11	9	9	33
Fla.	39	35	33	36	32
Ga.	36	43	23	21	42
Ida.	24	24	42	41	18
Ill.	18	12	11	10	8
Ind.	17	29	10	11	10
Ia.	23	34	20	24	20
Kan.	31	32	31	31	24
Ky.	26	36	14	12	40
La.	35	38	28	27	37
Me.	6	10	21	30	21
Md.	11	9	6 ¹ / ₂	7	34
Mass.	1	1	2	2	2
Mich.	15	26	22	17	17
Minn.	27	22	30	29	19
Miss.	38	46	27	26	43
Mo.	29	20	17	18	30
Mont.	44	31	44 ¹ / ₂	43	16
Nebr.	22	23	35	33	25
Nev.	37	13	40	46	26
N. H.	4	4	13	19	13
N. J.	10	16	3	3	7
N. M.	45	27	38	42	38
N. Y.	7	2	5	5	3
N. C.	28	40	19	20	44
N. & S. D.	46	37	44 ¹ / ₂	37	22
Ohio	9	18	8	8	6
Ore.	19	21	37	39	15
Penn.	12	17	6 ¹ / ₂	6	23
R. I.	5	5	1	1	11
S. C.	25	42	18	16	45
Tenn.	34	33	16	13	35
Tex.	41	44	34	35	36

TABLE II. continued

States in 9th Census	A. Noted Men Born in State ÷ Popu., 1870 Rank	B. Noted Men Resident ÷ Popu., 1910 Rank	C. Density of Population 1870 Rank	D. Density of Population 1910 Rank	E. Elementary Education 1912 Rank
Utah	21	19	36	40	14
Vt.	2	8	12	25	12
Va.	13	25	15	14	39
Wash.	20	30	40	32	1
W. Va.	32	41	26	15	31
Wis.	14	28	25	22	27
Wyo.	40	14	44½	45	28

Correlations from the above data. Spearman method, but coefficient converted to Pearson's "r." (Letters refer to specified columns in table).

48. A&B, 0.68 ± 0.05 49. A&C, 0.70 ± 0.05 50. A&E, 0.55 ± 0.07
 51. B&D, 0.18 ± 0.10 52. B&E, 0.67 ± 0.06 53. D&E, 0.10 ± 0.10

EXPLANATIONS:

The above rankings have been prepared from the same sources and in the same way as those in Table I.

A. See explanation of column A, table 1. A change is made, however, to the census of 1870.

B. See explanation of column Y, table 1.

C. and D. Based on census figures.

E. Like column Z table 1, based on Russell Sage Foundation investigation.

First Case Under Canada's Combines Investigation Act---The United Shoe Machinery Company

JAMES E. BOYLE,

Professor of Economics and Political Science, University of North Dakota

IN an earlier article in this Journal (January, 1913,) I made a full statement of the provisions of the Canadian Combines Investigation Act of May 4, 1910. Hence it is necessary at this point to give only the very briefest summary of this important law. Its exact title is "An Act to provide for the investigation of Combines, Monopolies, Trusts and Mergers." The Act provides that when six or more persons are of the opinion that a combine exists, or that prices have been enhanced or competition restricted by reason of such combine, to the detriment of consumers or producers, these persons may apply for an investigation at public expense of the alleged combine. If the written application for the investigation convinces the judge to whom it is submitted that a prima facie case has been made out by the applicants, he so notifies the Minister of Labor at once. Thereupon this Minister forthwith proceeds to appoint a Board of three persons to make a full investigation and to recommend the appropriate remedy. In case a "detrimental combine" is discovered, six distinct remedies are at hand. (1) Publicity. The findings are published in the Canada Gazette as well as in the newspapers thru the country. The pressure of informed public opinion is considered well nigh irresistible. (2) The tariff may be reduced or removed entirely, if the combine enjoys tariff protection. (3) Patents may be cancelled. (4) A fine of one thousand dollars a day may be imposed for ignoring the findings of the Board. The findings of the Board may serve as a basis for effecting other remedies (under other statutes) namely, (5) cancellation of licenses under the Inland Revenue Act, and lastly (6) a withdrawal of subsidies.

CASE OF THE UNITED SHOE MACHINERY COMPANY OF CANADA

The first case under the Canadian Act, that of the United Shoe Machinery Company, has revealed both the strength and the weakness of the Canadian law, and therefore justifies me, I believe, in making a rather full statement of the proceedings. This case began in November, 1910, and terminated (if the settlement reached be final)

about the middle of 1913. The technic of the procedure may be best understood by a mere statement of the chronology of the case.

CHRONOLOGY OF THE CASE

Stated as briefly as possible, the case took the following course before the final reports of the Board (majority and minority reports) were made:

1. Initiated November 10, 1910. Application is made to Justice Cannon of the Superior Court of Quebec, by citizens of Montreal, only one of whom is a consumer of shoe machinery, and who is the sole competitor of the United Company in Canada.

2. February 25, 1911. Judge Cannon orders an investigation.

3. February 27, 1911. Minister of Labor establishes a Board of Investigation. Appointment of Board completed March 16, 1911, by the appointment of a chairman. Board composed as follows: Honorable Mr. Justice Charles Laurendeau of the Superior Court, Montreal, Chairman; Mr. William J. White, K. C., Montreal (for the alleged combine); and Mr. Joseph C. Walsh, journalist (for the applicants).

4. March 1, 1911. Notice served on the Minister by the United Company that an appeal would be taken from Judge Cannon's order, on the three following grounds: "insufficiency of application"; "irregular procedure"; and "no jurisdiction" (order should have been made in district of Montreal where the Company has its principal Canadian offices).

5. March 21, 1911. Board holds preliminary meeting.

6. March 22, 1911. United Company files petition asking for an injunction prohibiting proceedings till June 15. Granted, April 1. Writ later extended to September 15.

7. May 16, 1911. Appeal (No. 4 above) dismissed by Justice Cross, Court of Appeals. Court holds unanimously that an "order" is not a "judgment" and hence is not subject to appeal.

8. July 12, 1911. Privy Council, London, refuses application of United Company for leave to appeal to London. Special leave to appeal was asked on the following grounds: (1) The Combines Act is founded on novel principles, and it is important to have these principles, at the very outset, decisively interpreted. (2) The Act is expensive to accused persons, exposes their business to competitors, and puts them out of the protective hands of the courts and into the unchecked hands of administrative departments. (3) The crucial question is, Is an Order subject to appeal? (4) Apparently an Order is a judicial act, subjecting ordinary civil rights to curtailment by

mere administrative departments. (5) The injury to be suffered by the petitioners by an investigation, no matter what the result may be, will far exceed the amount ordinarily justifying an appeal to the Privy Council.

9. November 17, 1911. Investigation by Board commenced.

10. October 18, 1912. End of Investigation. A total of fifty-nine witnesses examined. Sessions of the Board held with due publicity in Montreal, Toronto and Quebec.

MONOPOLY AND ITS CAUSES

The investigation was not as "expeditious" perhaps, as the law had contemplated. But it was thoro, and brought to light the following interesting facts. The Canadian branch of the United Shoe Machinery Company operates under license from the provinces of Ontario and Quebec. Nine competing companies had been absorbed by the United Company, and but one competitor remained in Canada. And of the 145 boot and shoe manufacturers in Canada, 138 were customers of the United Company. This company makes about three hundred varieties of machines for use in the manufacture of boots and shoes. Some of these of a general nature were sold outright. But the specialized machines, such as heeling machines, machines for lasting, eyeletting, etc., were leased only. The leases were all made for a term of twenty years. The royalty paid on the shoes turned out ranged from five to seven and one-half cents per pair, for the best shoes and a much less amount for cheaper shoes. Since the lease provided that the company should keep all machines in perfect repair and should introduce new and improved machines from time to time (extending the lease twenty years from date of new machines) it followed that the leases between the company and its customers were for an indefinite period. But the chief limitation in the lease was found in the "tying clause." Here is a sample from the pegging machine department.

TYING CLAUSE

"The lessee shall use the leased machinery to its full capacity on all boots, shoes, and other footwear made in his factory which are or are to be pegged, but the leased machinery shall not, nor shall any part thereof be used in the manufacture of any boots, shoes, or other footwear which have been or shall be lasted on machines not leased to the lessee by the lessor of its assignor or in the manufacture of any boots, shoes, or other footwear which have been or shall be slugged, heel seat nailed, or otherwise partly made by the aid of any

"Metallic" machinery not leased to the lessee by the lessor or its assignor."

This tying clause fastened the United Company's monopoly on its customers, and some customers chafed under the yoke, not because it was heavy, but merely because it "tied" them.

The Board, in stating its conclusions, said "The company has obtained a practically complete control of the business of supplying shoe machinery in Canada." But this monopoly was not due, so the investigation proved, to rebates, to predatory competition, or to unfair practises. It was to the following factors, however, said the Board, that the monopoly was due: "Control of Patent Rights; the quality of the machines supplied; the fact that the company can supply a full set of machines; the introduction of the tying clause into the lease and the duration of the lease; the efficiency of the service furnished by the company in maintaining its machines in good order; the facility with which the lessee can obtain repair parts for his machines; the maintenance of a corps of competent roadman at convenient places for the inspection and repair of machines; the fact that the manufacturers are all on the same footing as regards the royalties paid, the machines supplied, and the service rendered; the ability of the company to provide the large amount of capital needed to adopt and maintain the system of equipping factories with machines under lease.'

Neither the manufacturers nor the ultimate consumers complained of the Company's royalty charges. Neither were any complaints made by the manufacturers where the grounds of these complaints would disappear if the way were open to competition.

Would not the superiority of the machinery and the efficiency of the Company's service be sufficient security to the Company should the tying leases be dropped? No, President Winslow of the Company thought these would not be sufficient security. These leases gave the "security" needed (by shutting out competition) and any change in the lease system would require the Company to change its method of doing business. The necessity of such changes to protect the Company's interests and the nature of the changes were not clearly pointed out by the president, altho he was pressed on these two points.

FINDINGS OF THE BOARD

MAJORITY REPORT

"Competition Unduly Restricted"

The Board brought in majority and minority reports which are

published in full in the Canada Gazette of October 26, 1912. The majority held that "The United Shoe Machinery Company is a combine and by the operation of the clauses of its leases, quoted in the foregoing, which restrict the use of the leased machines in the way therein set forth, competition in the manufacture, production, purchase, sale and supply of shoe machinery in Canada has been and is unduly restricted and prevented."

Six months' time was allowed the Company to make such changes as would eliminate the restricting clauses of the leases. This gave the Company till April, 1913, to change the form of their leases. Before discussing the "obedience" of the Company to the Board's findings, it is but fair to look at the report of the minority.

MINORITY REPORT

"Business Not Restricted But Increased."

The minority report, signed by the Company's attorney, made these interesting and significant claims:

The words "unduly and "unreasonably" mean an act which is oppressive, contrary to public policy. Now, examine the Company's business as a whole, not merely the tying clauses in its leases. Has it been oppressive? The Company furnished the best machines that are known; it provides efficient inspection and repair; it introduces the very latest improvements; it charges a royalty based on output and hence is interested with the manufacturers in increasing, not restricting, output. Other shoe machinery manufacturers sold their machines outright, giving no adequate guarantee as to repair service. We furnished the service—a case of the survival of the fittest under free and fair competition. We have not increased the royalties or otherwise acted oppressively. On the contrary, every effort has been made to constantly improve the machinery, to assist new manufacturers in starting in business and to satisfy our customers generally. Our acts have thus not been against public policy. We have, on the contrary, been of manifest advantage to the manufacturer of boots and shoes, to the labor operating the machines, and to the consumer.

Each one of these claims is apparently borne out by the facts.

"OBEDIENCE" OF THE COMPANY

IS THE TIE UNTIED

After using up the six months of grace, and little more time, the Company finally produced a new set of leases. The question is, is the restricting clause eliminated in these new leases? Viewing this

mater as a layman, for I am not qualified to speak as a lawyer, it seems to me the plain intent of the new leases is to perpetuate the tying system. For instance, the "tying clause" remains the same. It is followed by a clause, which, interpreted broadly, does give the lessee the privilege of terminating the lease at any time. But it must be terminated under certain hard conditions, conditions in fact which would seem far more burdensome than the tying clause itself. For instance, the licensee (as he is now called) must give thirty days' notice in writing of such proposed termination, and must accompany the notice in writing of such proposed termination, and must accompany the notice with a check in payment for the machine, and must "surrender and deliver" the machine. From the amount remitted, however, the licensee deducts one-half the monthly rental which he has already paid on the machine.

To illustrate, take this table from the "Order and Lease Agreement," Goodyear Department:

SCHEDULE OF MACHINES

	I	II	III	IV	V	VI
Goodyear Welt and Turn Shoe Machine (Model K)						
No. ----	\$600.	\$6.	\$5.	\$15.	\$600.	\$3.
Goodyear Outsole Rapid Lockstitch Machine No. --	450.	3.	5.	15.	300.	1.50
Goodyear Outsole Rapid Lockstitch Machine (Mod- el M) No. ----	1000.	6.	5.	15.	600.	3.

Column II is the monthly rental schedule.

Column III—add this amount to monthly rental if other than machinery of United Company is used.

Column V—payment of this amount is to accompany notice to terminate the lease and license.

Column VI—this amount (which is half the monthly rental shown in Column II) is to be deducted from the payment required in Column V.

From this schedule it is easy to calculate the payment required from a licensee when he gives notice that he desires to terminate the agreement. The very fact that the licensee must now, to terminate the agreement, pay for the machine and then surrender the machine, will likely "tie" him as effectually as the old tying clause.

This is the solution worked out in compliance with the findings

of the majority of the Board. Technically the licensee is no longer tied for a twenty-year period. But in reality hard conditions now tie him for an indefinite period.

STRENGTH AND WEAKNESS OF THE LAW

A weakness of the Act is now apparent. There is no Board to pass on the final solution reached by the Company. The Board of Investigation went out of existence when the findings were published. Either this board or some other should exercise continuing jurisdiction over the dispute till a final and satisfactory solution is reached.

A single business competitor was able to bring on a long and expensive investigation of the United Company. And at the preliminary hearing before the judge, only one side was heard. Fair play to the corporation would seem to warrant certain improvements in the law in these two respects.

The main feature of the Canadian Act, efficient publicity, informed public opinion, is a proved success. The Canadian experience shows the many influences which go to build a monopoly. It justifies the belief that certainty of investigation and exposure will deter almost every combine from attempting oppression. But the chief lesson from this case is that of the efficiency of the monopoly itself.

MONOPOLY IS EFFICIENT

The Board was unanimous in the opinion that the United Company was an efficient monopoly, in fact that its efficiency was the chief factor in both establishing and maintaining its monopoly.

A careful, analytical, impartial reading of its whole case raises and answers the following questions, both for the United States and Canada.

1. Under this monopoly, who has suffered? Not the consumer of shoes; not the consumers of shoe machinery. There has, instead, been a minimum of economic suffering and waste.

2. Who would benefit by competition, should this monopoly be displaced by competition? Not the consumers of shoes; not the consumers of shoe machinery.

3. Does public policy require competition in this field, and if so, why? Public policy is best conserved, apparently, under the present efficient monopoly form. At least that vast majority of people who are shoe wearers and shoe manufacturers received efficient service at a fair price from the monopoly. Labor has been benefited. The consumer has been given a better article at a lower price. The 1350 shoe manufacturers of the United States and the 138 of Canada,

big and little, have been treated exactly alike, with special privileges to none. Absolute equality of economic opportunity has thus been conserved. The "average business man" has been protected from injury due to unfair methods of competition. The "highways of commerce" have been kept open to all, "big and little, rich and poor on the same terms." Stability has been given to the shoe business, and security to this field of investment of the people's money. Our foreign trade has been enormously expanded in shoes, and the American makes are making a commercial conquest of the great trade centers of Europe.

All this has been accomplished under the monopoly in the manufacture and sale of shoe machinery.

"Efficient publicity" rather than "criminal prosecution" is Canada's method.

Popular rights and property rights are both safe at the hands of the public when, and only when, public opinion is informed.

The Organic Concept and Society

JOHN MORRIS GILLETTE,

Professor of Sociology, University of North Dakota

RECENT sociologists are inclined to view the organic concept in its application to society with considerable reserve or to studiously disregard it. Yet it has had a large place in the literature of sociology and continues to be used in the literature of the subject to some extent. While the question of its employment is not a pressing issue in that science, there is a certain justification for reconsidering it. At least it may be considered an advantageous means of teaching the subject of sociology, of founding an understanding of the articulated nature of society, and, further, it possesses as much validity for purely scientific purposes as do some other concepts that are used by authoritative writers.

In so far as the organic concept has been discredited, this has occurred largely because of its former close association with the biological analogy. The latter, at least in implication and premonition, is evidently very old. Plato and the early English philosophers especially believed they saw similarities between society and animal forms. Thus Hobbes graphically named one of his works *Leviathan*. Probably the analogy consists more in the title than in the ideas developed in the work. He conceived society, or the state, as a vital entity, constituted of individuals but which persisted while the individuals passed out and others came to take their places.

But Herbert Spencer was the first to scientifically formulate the organic concept relative to society. It is not to be inferred that he believed the biological analogy holds good of society in all essentials. But he formulated the organic conception of life and of the cosmos more explicitly than had been done by others, and assembling the pertinent facts of biology and sociology examined them with a view to determining how far analogous society is to a vital organism.

It is well to remember that Spencer did not attempt to drive the analogical treatment to a point where society becomes only a great beast, as was done by Novicow. He expressly repudiated holding that society is a biological organism. In applying the biological terms, structure, function, etc., to society these terms are to be taken only as analogies, not as homologies. "The social organism, discrete instead of concrete, asymmetrical instead of symmetrical, sensitive in all of its units instead of having a single sensitive center, is not comparable to any particular type of individual organism, animal or

vegetable. There exist no analogies between the body politic and a living body, except those necessitated by the mutual dependence of parts which they display in common." (*Principles of sociology*, Vol. I, 580).

In a footnote on the same page Spencer states that his express motive for repudiating the opinion that there is a special analogy between the human organism and society was brought out by a criticism which appeared in the *Saturday Review* to the effect that he had so held in an article in the *Westminster Review* for January, 1860. But he states he was there criticising the conception of Plato and Hobbes which held to a likeness between an organism and society. Against this view he asserted that "there is no warrant whatever for assuming this."

Among great writers of relatively modern times Hegel should be mentioned as a contributor to the organic concept. While he did not deal with the biological analogy, his philosophy enormously contributed toward establishing the organic conception of the universe. A good many years ago while a student of his system of philosophy I was deeply impressed by its significance in this direction. His dialectical process by means of which the Absolute Idea realizes itself thru the historic unfolding of nature and society is nothing short of the process of evolution. It is pregnant with the interdependency and organicity of things.

In an even stricter sense than is involved in referring to the universe as organic, society may be alluded to as an organism. But whether it is organic in a more special meaning cannot be determined without a detailed examination of the comparative data of society and physical organisms. While sociologists have advanced beyond depending on the biological analogy explicitly to promote the interests of the science it is likely to be discovered as implicit in the writings of numerous authors. In so far as it is valid it is a useful agent, perhaps far more fruitful than are chemical and physical analogies because the individuals constituting society are more closely related to biological forms than to inorganic.

1. An organism involves the conception of unity. The unity consists in the coordination of its organs or parts. It acts as a whole and the action of the whole depends on the condition of the parts, while the action of the parts depends on the validity of the whole. A pile of bricks has no such unity. One of the bricks may be moved without disturbing the rest of the bricks or impairing the condition of the pile. A machine has a unity, a coordination of parts, so that if one part is destroyed the whole is invalidated. So far as bare unity

goes, therefore, a machine may be on a par with an organism. In each it is seen that an effect produced on one part affects the action of the other parts; but with a different meaning in the case of the organism. This different meaning leads us to the next mark, or characteristic.

2. The unity in the organism is vital. This distinguishes it from the mere machine. Its unity is necessary not only to its functioning as a whole but to its very existence as organism. This is strikingly seen in the higher organisms. If a part or organ is destroyed the destruction relating to the whole is final. The organ cannot be substituted. Of course this is not true alike of all parts. While the optician may now make a functional substitution of the crystalline lense of the eye by means of a spectacle lense the replacement is not vital. But a piece of skin may actually be replaced by grafting on the skin from some other person or animal. But the distinction in the modes of substitution in machine and organism serves to emphasize the real difference between the two kinds of machanisms. In the former the substitution can be made at once and completely, while in the latter the part substituted either remains external to the organism, as in the case of the lense, or can only become an organic part of it by a process of growth. Further, a detached part of a machine may in itself be a machine, while an organ separated from a higher organism dies and does not constitute an organism of itself. This is certainly true of warm-blooded animals but not so true of cold-blooded ones, nor of lower organisms such as the polyp. In the former the part extracted may live some time after its separation, while in the latter it may form a new creature.

This last fact seems to bring out another difference between the unity in machines and organisms. In the latter the coordination is made by means of a head or nucleus and is self-regulating. In the machine the coordination is effected by means of part acting on part in a causal manner, and the structure is heteronomous, which every device is finally. The amoeba has no head, to be sure, as have higher organisms. But since propagation comes by means of the differentiation of the nucleus, and contraction and expansion are seen to radiate from it, perhaps it would not be too much to say that coordination also comes thru the nucleus. In short the organism is a living unity constituted of living individuals; or as Spencer says, "of units which live individually."

3. The organism is genetic in character. It is a unit in a genetic series and is developmental in its nature and constitution. We may say of a machine, such as the locomotive, that it has been a develop-

ment but we only mean that the conception embodied in the modern locomotive or other complex mechanism has been a gradual growth. Growth cannot be asserted of any one locomotive. It cannot be said that a machine develops from a germinal machine. It does not have a life history. But an organism possesses such a history. This history consists of the record of its internal progressive unfolding relative to the influences that have played upon it from without and according to the terms and demands of its own internal inherited nature.

4. An organism is autonomous and infra-teleological. It is self-operative and bears its own end in itself. The purpose of a house is not in itself but in the mind of its owner. That of a machine may be in the mind of the spectator. In these cases one is impelled to look forward to something outside the objects considered. But in the case of organisms there is no compulsion for the mind to argue forward to anything outside them which represents their purpose. We have nothing to do here with the general scheme of things in which everything finite must be viewed as existing conditionally.

In the truest sense the organism is self-existent, or exists for itself. Now this cannot be affirmed of a machine. The machine does not get anything for itself by its activities and it is a matter of pure indifference to it whether it is active or idle. It lacks self-productivity and self-preservation. It does not cause itself. An organism does. The tree, for example, produces itself generically and its production is like itself. Hence, relative to itself, it is both cause and effect. But the machine has its cause and effect outside itself.

5. An organism is physical-hereditary. It is born, and born with certain physical endowments. It receives an endowment from the past which may be either a new variation or a transmitted parental characteristic. In either case it is the past chain of hereditary circumstances which determine it. It is a physical inheritance and is quite distinct from social inheritance. As an inheritance it is internal to the organism, while in the case of social inheritance the organism is internal to it.

How far does society possess these characteristic marks of organisms? An attempt to apply them to society is necessary to answer this question.

1. Is society a unity? In so far as coordination of parts is a criterion of unity a casual survey makes it evident that society involves unity. There is obvious cooperation between individuals, organizations, and communities. War, commerce, political campaigns,

civic improvement, religious, educational, and recreational associations, interstate and international organizations, are some of the indications of coordinated activity. That two people can get on together at all is proof of some sort of unity. But the fact that in all parts of the world not only two individuals but multitudes act in harmony creates the inference that there is some necessary unity. Whether it is a mechanical or vital unity must be decided.

We have seen that the unity of a machine is rather distributive in nature, that it consists of part acting on part, thus impelling or compelling whatever harmony there is in the machine. On the other hand, the unity in at least the higher organisms is not only vital but is attained by means of a special structure, a nervous system. Every organism is a vital unity, that is, a unity that rests on the basis of feeling, or sentiency. In order that one part may take heed to the call of another part communication and response take place by means of a special structure. This special structure is so dominant in the life of the organism that it seems as if the other parts exist for it.

Now, that society preserves unity in diversity on the basis of sentiency doubtless will be accepted without special proof. Mere mechanical adjustment of social part to part so that the one shall compel the other to act, as is done in the machine, is evidently out of the question. Further, that society has any portion of itself set apart as a system of intercommunication for which the other parts may be said to exist there is little ground for believing. Especially is it true that society does not have a head or center for which the other parts exist altho the existence of despotisms and governments resting on enslaved populations might give some superficial support to the claim that some societies have had. To maintain that there is a social brain would carry us to the doctrine of the divine right of kings with a vengeance. Rather we must seek any existing analogy for society in those lower organisms whose parts seem to cooperate distributively from a sense of self-preservation, as occurs in the case of the sponge. But in that example the individuals have lost their liberty by becoming fixed in the stiff structure of which they have become a part. Perhaps caste-ridden societies, such as that of India, may present something analagous, tho only partly so.

If we regard the other feature of the vital unity resident in organisms, namely, the necessity imposed on each part to keep in the whole in order to preserve its life, we are again met by variations in the degree to which it obtains, from the higher organisms where it is almost completely the case to the lowest where it is often ex-

ceptional. And if we attempt to find an analogy therein for society it must be in the lower grade organisms where parts may be excerpted without the loss of life and where the unity is exceedingly flexible in its conditions. It is doubtless true that in a highly specialized nation, such as England, it would be disastrous to excise any great class such as artisans; disastrous to the class and to England as a nation with its peculiar commercial character. The excerpted class could live, providing it could be given proper conditions. So could most any part taken from any organism whatever. That is just the problem: to produce the necessary conditions to the maintenance of life outside the whole from which the part or class is extracted. Both in meagerly differentiated organisms and societies it is a relatively easy matter for the excerpted part to maintain itself, while in highly differentiated organisms and societies it is a difficult matter to discover and establish the requisite conditions for further life. Recent advances of science have made it possible to preserve the connective tissue of the human body for an indefinite time for later incorporation in living organisms. But we know of no instance where a social structure has been so preserved and transplanted.

But we must proceed further to discover the real unity that society possesses. Cooperation on the basis of the sentiency resident in the parts may be common to organisms and societies. An analysis is necessary to determine the nature of the coordinating sentiency in society.

If we seek a material expression of social unity we can find a number of forms:—industrial, commercial, religious, political, educational, etc. But none of these account for the real unity involved. They are the result rather than the cause of unity. To act in conformity, or harmony, there must be something in common between men to point their activities to mutual ends. Purposeless activities on the part of men would never produce agreement of such fundamental import. To agree there must be a common desire, a common purpose. Purpose and desire is the expression of thought. An effective social stage does not develop until men are able to act from an idea of objects, until they can think in common terms. Animals have but a modicum of society because there is such a slight amount of common thought and purpose. To purpose requires conceptual alternatives from which to choose. It involves some rational procedure upon the foundation of an organon of knowledge. Human society consists of small and ephemeral groups until men have acquired some universal conceptions, some classified knowledge from

which to select and construct certain common lines of procedure. A community cannot advance until its members are able to represent the situation to themselves, agree on a line of action, and take the appropriate action. So far as there is unity each member is a focal point which is representative of the common spirit of the community.

It may be objected that this is too intellectualistic to coincide with the actual society; that multitudes of men living in modern societies know little of the mechanism and principles that lie behind nation-wide and world-wide coordinations; that it leaves out of sight the sentiments, emotions, and instincts of mankind which are such great factors in social life. Granted that the great mass of men follow conventional paths in most of their activities, not excluding business or education; but they grasp the essentials of the principles of cooperation so as to be able to react and to follow the lead when activities are initiated by those who are more intellectually competent. Further, in complicated social situations the emotions, sentiments, and instincts are blind and it is the ideational factor that always points the way. Whatever conserving and transforming power they have is consequent to the guiding function of the directive agent, the reason. Even in quite conventional matters the direction of the individual's activities is determined by the appeal the world-idea or the dogma makes to the measure of intelligence involved. What he does is justified by the argument that the fathers have always done it so, or that the church as an authoritative institution so decrees. His mode of procedure is in harmony with the rationale of things as he sees them. The issue is not whether he is led, or whether he is right or wrong, but whether he proceeds upon instinctive and emotional grounds without the touch of principles, or upon those grounds illuminated by the quality of intellectual processes his grade of development guarantees.

And in matters of progress this is all the more true. Departure from the beaten path demands that the habits of the individuals involved must be broken up, that a process of readjustment in the mental structure must take place, and that a new order of things must be recognized and followed. Whether the adjustment on the part of any given individual will or will not be made is dependent on whether he will be persuaded that, considering the situation, the arguments and appeals in support of the old or the new order are the more weighty. The considerations which affect him may be trivial, his intellectual processes may be pitifully feeble, he may be dominated by "feelings" rather than by "reason."

Yet after all he decides the case on the basis of and to the mesure of his intellectual and rational ability.

2. That society has undergone a growth or evolution which runs somewhat parallel to that of the organism would be a natural inference on the part of any one who is prepared to think in terms of evolution. However, the fact that multitudes of people have lived who were apparently educated and who, nevertheless, did not conceive of humanity or society developmentally; and the fact that there are many such persons now living are indications that social development is not necessarily patent. Nevertheless the genetic outlook relative to society is the only one which can be maintained in view of the facts.

First, society has grown extensively. The number of members who constitute it have enormously multiplied. Europe doubled its population during the last century while the United States has increased the number of its inhabitants in each decade of its history at the rate of an average of twenty per cent. Advancing civilization on the expansive side signifies the growth of population. The United States domain peopled by savages would support a population of from one to a few millions; peopled by enlightened men it may support a billion or more.

Second, society has also developed intensively. In reality this is the cause of the other but we are concerned merely with the fact as fact. The intensification of society is seen in the origin and perfecting of social structures which carry with them a like multiplicity of functions. In general terms Spencer's idea of evolution as consisting of a process of differentiation and integration of structures fits society as a growing thing. Incrementing division of labor with the concomitant and consequent interdependence of members and functions has marked the upward movement. As Ross has pointed out integration because of the interdependence of specialized structures may not be the sole kind of unification yet it is a fundamental factor in the integrating process.

In the organism growth proceeds unconsciously. Consciousness on the part of the growing parts or of the whole has little or nothing to do with increase or intensification of the life process. In society mere growth may take place without directive consciousness on the part of society itself. This is evidently true in what we have termed expansive growth, altho nations recently have paid attention to population matters. In this, too, there may or may not be a modifying consciousness on the part of the members involved. But in intensive growth there is more likely to be a social consciousness, es-

pecially if the intensification lies in the political line of activity. However, in backward societies evolution proceeds rather unconsciously so far as society itself is concerned. But in the course of evolution the group or community as a whole takes larger and larger part in the direction of affairs and social consciousness becomes a larger factor in society. Social transformations which occur by reason of the interference and direction of the community as community in order that the welfare of the masses shall be advanced is progress. However, the differentiation of new structures is most likely an affair of individuals and of constituent groups rather than of society generally.

Extensive growth of organisms takes place by assimilation and accretion. Most organisms grow by assimilation, by taking material into themselves from without and absorbing it. In the case of very low organisms, such as myxomycetes, the ultimate individual is constituted of combining individuals. Society may use both methods of growth. It may assimilate foreigners and native children, or it may unite hitherto separate communities and states. In the case of the former the process is unlike that of the higher organisms which maintain special nutritive systems. Society has no stomach into which the new element is thrown to be wrought over. Further, the growth which takes place by the birth and socialization of children has little resemblance to the nutritive process of organisms. Both the assimilation of foreigners and of native children is more akin to the action of the amoeba when it incloses its object within its body and absorbs it.

3. Does society possess the infra-teleological characteristics that are involved in organisms? Is society autonomous? Is the end of society to be found in itself or in the members which compose it? If the end of society is to be found in the individuals which compose it, is it the same thing to say that society exists for itself as that it exists for its individuals?

Relative to the external world it must be asserted that society exists for itself. Regarding the universe from a scientific point of view there is no conceivable function our territorial society can perform or contribution it is able to make that furthers or hinders the operations of the cosmos. While its individuals enter into the physical relationships with the earth and with the larger aggregations and systems of matter at large society must be unknown to the universe as a physical, or perhaps even a psychological fact. In this respect it is self-existent, self-sufficing, and autonomous.

But what is meant when it is said that society is self-sufficing

and self-existent? Does it mean that it is to be regarded as an end in itself or is it only a means to an end? This can be settled only when society is viewed in relation to its constituent members.

In the case of organisms it is discovered that the whole exists for the parts in the sense that they secure their existence thru it; and conversely the parts exist for the whole since they are conditioning agencies of its existence. So much is generally true of society and its members. But we have seen that in the higher organisms the parts appear to exist for the central nervous structure, especially the brain, by means of which coordination of parts is secured. A man will sacrifice his limbs or other members rather than lose his head because none or all of the members are important save on condition of the validity of the brain as a coordinating organ. Their life is in its life. Whatever end it sets up becomes their end.

It is often and popularly conceived that society exists for itself, that institutions constitute the great object of human effort, and that individuals are contributive and incidental. While this idea is not inspired by the organic concept it is quite analogous to the situation just referred to as it exists among higher organisms. But there is nothing, no nucleus of any sort in society which corresponds to this. The central government of a nation is the nearest approach to it. Washington coordinates the parts of the nation in a political sense and exercises over them a certain regulative function. It is the expression of the public will, essential to national unity, and carefully guarded in times of stress because of this fundamental service. But the government at Washington is not the end of our national existence; only a serviceable agency in the direction of maintaining a balance between the parts of our national society and protecting and advancing the several interests involved. It might be moved or transformed into some other form or displaced by another government without destroying more than a minimum of lives of the inhabitants. The lives of the members of the nation is more important than the government, and the latter is to be regarded as important and necessary only to the extent its functions are contributive to securing the general welfare. It is a means rather than an end.

What is true of government is true of every other institution or organization. Institutions of every kind are social structures whose functions consist in coordinating the activities of individuals for the promotion of some desirable object. They are agencies in the work of furthering some of the numerous human interests and their desirability and worth are measured by the efficiency with which they perform their tasks. If they fail they should be transformed or

eliminated. They are not sacred save in the measure of their promotive efficacy. And what is true of any institution is true of all institutions collectively. And since society is the sum of its institutions the same is true of society.

4. How far does society possess an inheritance from the past at the time of its formation? Here we must distinguish between the formation of society in the original historic sense and that of modern communities.

Primitive human society was the lineal successor of pre-human groups. Some animals lead a community life. While in some groups the communal phenomena are only seeming, being almost purely instinctive in form and without much associational content, in groups of other kinds of animals there is a distinct social heredity which consists of accumulated experience that is imitated by each new generation and in some cases is taught to the young by the parents. By the time man emerged this stock of group experience was considerable, and altho the instinctive element in life was dominant the inter-individual factor was sufficient to modify and enhance life. The essentially social matter is thus seen to have been transmitted extra-biologically.

Relative to the formation of modern societies the case is more akin to the birth of physical organisms.

There are several ways by which organisms are reproduced:—birth, budding, segmentation, aggregation, etc. Now recent societies form in several ways also. Frontiersmen living in different settlements may organize into a larger community or state, somewhat paralleling organic formation by aggregation. Again, a state may send out colonies and form new states upon the basis of the mother state; or the citizens carry so much of the content of the mother state in the shape of ideas and spirit that the new state they form resembles the parent. This is approximately analogous to organic reproduction by birth or by budding. Then again, a state may divide into two or more states by reason of rebellion or revolution, the character of the cultures and political organization remaining largely identical, the process of state formation resembling organic reproduction by segmentation.

Turning to the inheritance derived from the progenitor we find that a new society may and must inherit certain characteristics from its parent society. But the inheritance is handed down in the ideas and characters of the individuals who constitute the new society, while as we have already seen the inheritance of the new organism is passed down thru the medium of the physical constitution.

5. There is another differentiating feature which is mentioned by Spencer that is wholly physical in character, namely, that in organisms the parts form a concrete whole while in society the parts are discrete. True, he thinks the difference is less than at first appears since the individuals constituting society are united by means of animal and vegetable production (as well as by communicating agencies of all sorts) which are equivalent to the semi-vital material of the body. But would it not be as pertinent to assert that society is an organism because its members walk on a common earth, or that a forest is an organism because all its trees and shrubs derive their substance from common chemical constituents?

It would be comparatively easy to indicate features of society to which no analogies may be found in organisms, such as the lack of symmetrical and definite form, high differentiation and integration without the corresponding power of locomotion, absence of reproductive organs, etc. Most analogies, however, are based upon physical characteristics and do not touch the primal reason why animals congregate, why and how men organize. Further, it is quite possible to discover certain similarities between society and the solar system, and between it and chemical systems and processes. Thus as celestial systems evolve there is a higher differentiation of parts with an accompanying increase in integration. Likewise the fusing of cultures and the formation as a consequence of a new and higher culture has something in common with the synthetic process carried on in chemical combinations. Spencer's name is intimately associated with the first form of analogy, Ward's name with the second. But it is very questionable if either method really throws much light on the nature of society. The nature of society is far more likely to be revealed by a consideration of the nature of the bond which unites individuals living in society. In pursuing this course it is not intended to disregard the physical factors associated with the social fact since they are indispensable as furnishing the necessary condition of all social relations whatever but in no sense are they to be regarded as the cause or substance of those relations.

In view of this presentation it appears that while there are many similarities between society and physical forms of life there are also many and fundamental differences. It is obvious that the psychical factor enters into the essential nature of society, conditioning its origin and progress and constituting its processes. Individuals form into societies only in so far as they conceive common lines of action and react as individuals so as to realize those lines. Society develops not merely by multiplying individuals but by increasing the

number of modes of cooperative endeavor. The social process of a local community, a nation, or a world-society in so far as one exists proceeds upon an intense and varied division of labor that can be operative only between individuals sufficiently advanced in intelligence to catch the import of a mutual form of activity and to execute it, the initiating and regulating of a system or line of the division being in the hands of the intellectually abler members of society. Especially were the intellectual leadership in the various great lines of interests to cease, the larger community solidarity would fall apart like a projected pack of cards.

In all this we take for granted the existence of customs, conventions, systems of belief, and cultural influences of all kinds that lay the foundation in type of civilization and intellectual ability and interests which make possible the larger associational processes. But having assumed this we may say that every place we touch it society is found to consist of mental interaction of some kind. Thus there is society and individuals. One hundred million persons living within the confines of the United States do not constitute society. Only at such times as those persons mentally act and react on each other does society appear or exist. All efforts are individual in nature. Only common plans and purposes are social.

There remains the question, consequently, as to the relativity, or applicability, of the organic concept to society. Is society an organism in any fundamental sense, and may the terms organism and organic validly be applied to it?

While the term organism was doubtless first applied to living beings, or physical forms, because they were observed to be constituted of interfunctioning organs there is no good reason for confining the term to them. In so far as society is made up of structures, or organs, which articulate with each other and which carry on distinctive divisions of labor it is to be conceived as an organism in the strictest meaning of the term. It is a matter of indifference for determining organicity what the nature of the organ, or structure, is which is involved in any given case; whether it is a physical or psychical structure. If only it has a function to perform for the whole as one among other structures it is competent to serve as organ, and the totality of articulating structures is eligible to be considered as an organism. Were the earth, the solar system, or the universe made of parts, each of which performed a distinctive service which was fundamental to the existence and perpetuity of the totality to which they belonged, for similar reasons they should be regarded and termed organisms. As a matter of fact it has happened

in the course of the history of philosophy, notably in the case of Caird, that the universe has been viewed as an organism.

There is another justification for the application of the term organism to society. In a distinct and valid sense the term is capable of expressing a unity of a characteristic kind which obtains in the case of the object or field of objects which is under consideration. There is no other term or concept which is the vehicle of this meaning. Should a burnt or pressed brick be spoken of as a unit, or as possessing unity, no more is meant than that the particles which constitute it cohere in such manner that their totality preserves a definite, characteristic form; or that the aggregation of matter as an object is capable of being opposed to other aggregations. But in referring to some totality as organic the expression conveys the signification that the parts which are involved in it not only cohere or keep in touch with each other but that they function together interdependently. In this sense it is appropriate to refer to a machine as organic because the parts are not only bound together by physical bonds but they functionally articulate with each other. In the case of living bodies and of society not only is there this interdependency of functioning, but a still higher degree of organicity appears in that each involves an evolving process which is conditioned by the characteristic unity.

Book Review

THE DEVELOPMENT OF AMERICAN NATIONALITY: CARL RUSSELL FISH, Professor of American History, University of Wisconsin. The American Book Company, New York, Cincinnati, and Chicago, 1914. XXXIX + 535 pp.

This work, the second in the series, is designed to present a brief account of our national history from 1783 to the present time. The work, we are told by the author, is to perform a two-fold service, first and chiefly to serve as a college text for undergraduates, and to present also a summary of the latest conclusions of our scholars in the field of American history.

As a text-book for undergraduates it is doubtful if it will serve a useful purpose since the style and arrangement are of such a nature that the average beginner will find the greatest difficulty in using it effectively. Too much is left to be supplied by the student, who is confronted by an array of works at the end of each chapter no one of which can offer the solution of the numerous problems presented or suggested with but passing comment in the body of the text. The discussion in most of the chapters neither summarizes the details in clear-cut phrase nor eliminates that multiplicity of facts that never fails to confuse the beginner. The impression left with the reader is likely to be that produced by a lecture course covering about the same range of topics. Indeed, the work seems to consist to a considerable extent of lecture notes, rather more useful to the instructor than to the student. It is, as a whole, suggestive, discursive, and at times critical but the subject matter is not arranged so as to mass facts and accumulate evidence for the conclusions and summaries to follow logically and in the orderly fashion required for a text. The style and arrangement is rather that of a running commentary upon history, and is lacking in that closely reasoned and compact presentation so necessary when considerable periods of time are to be covered. The author has given us a special treatise on a very confused and unsatisfactory period of our national history. He has minimized the mere narration of military events and has dwelt more fully than most writers on other equally important phases of American life. Especially is the southern viewpoint and influence given deserved prominence. As is to be expected, in the effort to cover so extensive a field there is much that is purely conventional but this is relieved by not a little that is new and constructive. The work

will undoubtedly prove valuable as accessory material for class presentation.

The second claim of the author that the work is designed to give the latest results of scholarship is not so well maintained. Our first constitution, the Articles of Confederation, is discusst in a purely academic fashion, and no hint is given that this instrument summed up the previous experience of the English colonies in dealing with the legislative and executive departments of government. The second constitution is treated in very much the same way with little if any statement of the forces that were at work preparing the nation for this forward step. As a concrete illustration of this, the constitutional significance of Shays' rebellion for the state and for all the states is overlooked.

In the discussion of the colony and state of Virginia there is to be found that time-worn error that the immigration into the colony was "cavalier," leaving the reader with the impression that New England alone received immigrants acquainted with the middle class theory of Parliamentary government. As a matter of fact this claim for New England has no foundation in history and the thirty thousand colonists who came to Virginia between 1649 and 1660 were as firmly grounded in the principles of constitutional government as were their Puritan contemporaries, a fact which the epithet "cavalier" has long served to conceal. On the other hand we can hardly agree with our author in holding that previous to the Civil War the planter class furnished our presidents for more than two-thirds of the time.

The treatment of Jefferson is a conspicuously weak place in the work, his election as president in 1800, that marks so important a turning point in our history, is barely mentioned, with no indication of its far reaching importance. The statement that with Jefferson's administration there is a return to the principles of the Revolution is on a par with the earlier suggestion that the Federal Convention of 1787 was a thing quite apart from the leadership and tendencies of the Revolution. Jefferson, the constructive nationalist, who stood for the right and necessity of foreign immigration in 1798 and who made the purchase of Louisiana, is quite ignored in the emphasis laid upon the Kentucky and Virginia resolutions and Jefferson's earlier opposition to the theory of implied powers. The War of 1812 is discusst as tho it were merely a party matter instead of being, as we are coming to see, the only truly national war in our entire history.

In the matter of generalization designed to afford the student a profitable summary of details, the author seems at times to be not

altogether happy. The reasons given for Jefferson's purchase of Louisiana have long ago been shown, in Henry Adams' history of the United States, to have no weight. One can hardly agree with him either when he says, "No other generation of Americans has ever been so isolated from the European world as that which flourished between 1815 and 1845." The significance of the Monroe Doctrine in contemporary world diplomacy and the rising tide of foreign immigration during this period would seem to indicate that whatever might have been our attitude, the average European, whether at the court or on the soil, was keeping in fairly close touch with things American.

In the discussion of the Jacksonian period the conventional error regarding the so-called spoils system reappears without change. That Jackson stood for a new principle in government is quite overlooked. No credit is given him for discovering that the American people were determined to elect, or tolerate in appointive positions, only such officers as would declare themselves responsible to the voters. Yet this simple but formidable idea has been the rallying point for most of the struggles in behalf of decent government from that day to this. Henry Clay, on the other hand, is far from being the representative of the frontier he is made to appear; he shows not a trace of its influence in the great crises of his career and he seems to have been at all times utterly lacking in even the fundamental qualities of statesmanship possessed by his great contemporary and opponent.

The center of gravity of our nation has long ago left the coast and moved on to the Middle West. The recognition of this fact is finding its way increasingly in the later works of our historians. In this work we are considering it is stated that political democracy in the Mississippi valley "took its form largely from the habits acquired in the old mountain frontier." This statement entirely disregards the fact that the people of this great region belonged to the South as well as to New England and the Middle States and were not merely descendants from the mountaineers of the Appalachian area. But they were also more than this, the increasing tide of foreign immigration was contributing its ideas and points of view to the complex social and industrial whole. The Middle West voter who had elevated Jackson to the presidency and had learned how to think in terms of national sovereignty from Webster had long ago outgrown the frontier of Daniel Boone just as he had sloughed off the Puritan exclusiveness of the Mayflower cult.

Quite unexpectedly we find the contemporary phrase "Godlike" used in connection with Webster on the occasion of his inglorious

March 7th speech. When we recall how by this speech Webster placed himself hopelessly at variance with the moral standards of his own section and ignored the plainest indications of the trend of Northern public opinion, it is hard to see the fitness of giving currency to such a phrase unless it is to convey to our minds that like Jove, the Massachusetts orator did occasionally nod.

In the account of the Webster-Hayne debate we are told that it was a drawn battle and that Webster actually stated the constitutional paradox that the nation was as sovereign as the states. In view of what Webster had gained from a profound study of constitutional law it is hardly conceivable that he should let slip this greatest occasion of his career without voicing what had come to be a conviction with the most progressive citizens, especially in the Middle West, that the Federal Government was exercising the sovereign authority of and for a sovereign nation and that no other theory of sovereignty could any longer hold sway except in the minds of the particularistic defenders of a threatened Southern institution.

The treatment of the whole slavery question in this work leaves much to be desired. There is too much of the purely conventional class-room method and not sufficient recognition of the fact that for the last thirty years of its existence slavery was arousing more and more the deep moral convictions of the North against it. This is what gave the real significance to the Lincoln-Douglas debate as well as to the appearance of Uncle Tom's Cabin. No handling of this important phase of our history is at all adequate which so largely omits, as this work does, to lay special stress on these vital considerations at every period in the long controversy.

O. G. LIBBY

Department of History,
University of North Dakota

THE OLD LAW AND THE NEW ORDER: GEORGE W. ALGER. Houghton, Mifflin Company, Boston, 1913. 296 pp. Price, \$1.25, *net*.

Mr Alger is well and favorably known to magazine readers as a lawyer-journalist of broad public interests and clear insight. His recent book is, in the main, a collection of essays that have appeared from time to time in the *Atlantic Monthly*, *The Outlook*, *The Independent*, and elsewhere. He deals with various phases of the relations of the courts to the changing industrial order, writing in untechnical language that is fitted to convey to the lay reader a sympathetic understanding of the problems with which the courts labor, the reasons

for the patent defects, and the changes best adapted to meeting the situation. The book should be of great value in allaying the present unintelligent criticism of the courts, and in furthering such changes as may be necessary.

The first chapter deals with the recent aggressions of executive power in the state governments. This is shown to have developed necessarily from the menace of a flood of ill-considered legislation. The second chapter deals with the courts and legislative freedom. It is shown that, tho the courts may seem to have opposed necessary legislation, there is taking place at the present time "a slow but sure change under the pressure of formulated public opinion in the character and scope of the constitutional limitations of due process of law." That is, the courts are coming to recognize the needs arising from new industrial situations.

In the next few chapters certain defects in the working of the courts are explained. The miscarriage of justice thru appeals is made clear, and the limitations thrown about the lower courts are shown to be important causes. The result of upholding the letter of liberty of contract where the application means "the constitutional right of the industrially helpless to remain helpless" is illustrated by appropriate cases. The well-known inadequacy of criminal procedure in some states is shown to be related to the unwarranted withholding of responsibility from the trial judge, who is so hampered by technicalities that he is unable to direct the course of the trial.

In the final chapter, on the Ethics of Production, the shortcomings in ethical standards as applied to business are exposed, the dominant note is one of optimism. "The corruption we hear so much about is not new. The new thing is the desire to uproot it."

While Mr. Alger very naturally at times may seem over-anxious to defend his profession from the full force of admitted criticisms, yet he exhibits, in general, such fairness and understanding as to merit for his book a wide reading.

Department of History,
University of North Dakota

G. R. DAVIES

THE FAMILY AND SOCIETY: JOHN M. GILLETTE, Professor of Sociology, University of North Dakota. A. C. McClurg and Company, Chicago, 1914. VIII + 164 pp. Price, 50c.

This is a brief summary of a large body of information upon a subject of commanding interest and importance. Reading circles and

university extension classes, as well as individuals, will find it attractive and serviceable.

The first chapter discusses the functions of the family, with recognition of the great truth that in good families children are twice born, first their bodies, and second their tastes, interests, ideals, ambitions—their ingrained ideas, sentiments, and modes of action. "Social beings," the author well says, "are not born, they are developed."

The second chapter, the shortest in the book, discusses the origin of marriage, beginning with the various interesting hypotheses, which can neither be finally proved nor refuted, concerning the primitive ancestors of man. The third chapter treats of the various existing forms of family organization, the conditions under which they appear and some of their characteristic social effects.

The fourth chapter deals with existing conditions in the United States. Professor Gillette concludes that the prevailing notion that an increasing number of our people remain unmarried is exaggerated. The statistics appear to indicate that the proportion of persons who reach old age without ever having married is somewhat larger than formerly, however, the total percentage of unmarried persons over fifteen years of age is reported as showing a progressive decrease during the last two census decades. The alarm which is sometimes expressed on account of the postponement of marriage and consequent great reduction in the size of families is said to be due to the conspicuousness of the social class in which such postponement takes place, and to be in spite of the fact that such postponement is characteristic of only a very small class of our population, while exceedingly youthful marriages are numerous and the general age of marriage has become lower. But this postponement of marriage and reduction of families takes place in the very class in which the highest type of children could be expected, namely the class that has struggled up to a high standard of living. Moreover, the decline in the size of families is far from being confined to the class in which postponement of marriage prevails. The great increase of divorce in this country is greater in the cities of a given state than in the rural regions of the same state. Yet the increase of divorce has been far less in the older sections of the country, in spite of their far greater urban population, this increase being least in New England, next in the South Atlantic and next in the North Central States. The increase in the North Atlantic States between 1867 and 1906 was about 17 to about 43 and in the Western States from 50 to about 170 divorces per 100,000 of the population. One of the serious causes of divorce,

not always sufficiently emphasized, is the large number of thoughtless marriages contracted by very youthful persons. The evil consequences to children of divorced couples are impressively, tho only partly, exhibited by statistics of the causes of juvenile dependency and delinquency. Proposals for the diminution of the evils resulting from divorces are conservatively discust. The last section of this chapter is devoted to a treatment of the "social evil." It includes the opinion that the vast business of prostitution in great cities is "chiefly due, not to the male residents but to visitors and transients"; it notes the rapid growth among those who have expert knowledge of the subject of the opinion that no policy is acceptable but absolute prohibition, and recognizes the close connection between the problem and the general subject of amusements.

The fifth and final chapter treats very briefly of the biological phases of sex and the family, including sex determination and the futility of efforts on the part of parents to affect the sex of their offspring.

It would be a wonderful thing if a book which traverses so wide and diversified an area of facts and theories should escape every inaccuracy. And the writer occasionally leaves a sentence in which he might easily have improved the form of expression. But in general the style is eminently readable and clear and the statements guarded, and the information adequate. The book will prove a creditable and decidedly useful addition to "The National Social Science Series."

EDWARD C. HAYES

Department of Sociology,
University of Illinois

PAPERS AND PROCEEDINGS OF THE SIXTH ANNUAL MEETING OF
THE MINNESOTA ACADEMY OF SOCIAL SCIENCES: Edited by
JEREMIAH S. YOUNG. Published by the Academy, Minneapolis,
Minnesota, 1913. VI + 246 pages. Price \$2.00.

At this meeting of the Academy the fire of discussion was concentrated—very wisely, we think—on one subject, namely State Regulation of Prices and Wages. The economic and legal aspects of price and wage regulation were very thoroly presented by persons representing all possible view points. Thus the President of the Academy, Mr. Ambrose Tighe, spoke on "The Police Power and Economic Welfare." He contended that the judges may now, if they see fit, extend the police power to include price regulation where freedom of contract no longer exists, and they may even extend this

regulation to include the wages of men. Mr. Allen Albert stated that in the field of public utilities state regulated monopoly is desirable, but beyond this field competition should be enforced. Professor Raymond V. Phelan took the position that where "legitimate competition" could be enforced it should be enforced, but where monopoly has "distinct social advantage," it should be accepted with government price regulation. Hon. B. H. Meyer of the Interstate Commerce Commission showed the advantages of a State Public Utilities Commission in contrast with regulation by local jurisdictions.

One very valuable feature of the report is that section dealing with wage regulation, notably the papers by Miss Josephine Schain, Librarian in charge of Municipal Reference Division, Minneapolis Public Library, on "Wages of Women and Children in Minnesota," and by Professor John A. Ryan of the St. Paul Seminary, on "Minimum Wage Legislation." Miss Schain presents statistics covering the earnings of 8,555 women. She gives \$7 a week as a minimum living wage. Her statistics show that nearly 25 per cent of all women reporting receive less than \$7 a week. In ten industries the per cent is 30 to 35; in six industries, 36 to 50 per cent; and in eleven industries over 50 per cent are paid less than \$7 a week. The worst paid industries are confectionery and crackers, telephone, advertising, novelties, carpet cleaning, glove manufacturing, department stores, and millinery. Professor Ryan argues strongly for a minimum wage. He thinks it possible and even probable that the federal Supreme Court, in the light of their decision of the Noble State Bank vs. Haskell case, would uphold a minimum wage law for men.

Mr. P. J. Watrous, Secretary of the Wisconsin Industrial Commission, describes the activities of the Wisconsin Commission and points out the problems confronting it.

In an appendix to this Report is the thesis of Percival W. Vieselmann on "Corrupt Practice Legislation." This is a thoro and complete summary of the question, and contains a most excellent bibliography.

The Minnesota Academy is to be congratulated on these illuminating annual reports, combining as they do all that is latest and best from the academic, the legal, the judicial, the legislative and the administrative standpoints.

JAMES E. BOYLE

Department of Economics and Political Science,
University of North Dakota

ADVANCED AMERICAN HISTORY: S. E. FORMAN. The Century Company, New York, 1914. XIV + 634 pp. Price, \$1.50.

Dr. Forman is well and favorably known to many high school teachers thru his book on Civics. Many elementary teachers are familiar with his work in history. He has now attempted a more ambitious task, and has prepared the Advanced American History as a text-book for secondary schools.

In accordance with the prevailing styles in history text-books, the new work is advertised to give a large share of attention to economic and social subjects. Chapters appear at intervals summarizing in an interesting way various phases of the life of the people. One valuable feature deserving of special commendation is the relatively full account that is given of the westward movement of population,—something that should especially appeal to western schools. In general the narrative in both political and economic phases follows conventional lines, and does not enter upon questions that recent critical work has raised.

Probably it is too early in the development of an American school of scientific history for an entirely satisfactory text-book to be written from an economic standpoint that is not an out and out industrial history. The true relations between our industrial life and our political development are not yet clearly enough discerned to admit of exposition in a brief compass. Most history that has been written with the laudable purpose of giving the young pupil a view of the underlying motives of American life leaves the reader with the impression that there is a political history and an economic history running as two separate strands thru the past. A picture of one strand here and another strand there emphasizes the duality rather than the unity of history. Yet national life is organic. The state has always been the expression and coordination of great economic and social forces. Political and industrial phases, tho convenient abstractions, are in reality one. In the future the problem may be worked out of portraying the national life as the resultant of various individual and social forces, such as race, tradition, invention, and economic interest, in their relation to the conquest of a virgin continent. At present the foundations are not more than laid for such a work.

The style is readable; the helps, illustrations, and other mechanical features are good. The book will take a high place among the many books of its kind now on the market. G. R. DAVIES

Department of History,
University of North Dakota

FORTY YEARS OF IT: BRAND WHITLOCK. D. Appleton and Company, New York and London, 1914. XII + 374 pp. Price, \$1.50, *Postage extra.*

"Forty Years Of It"! Forty years of what? is the question that at once arises as the book is taken up. There is no clue to an answer found in a sub-title, nor does the author, anywhere between the two covers, give one at all direct. To find the answer the reader must read between the lines and often with his eyes closed. He must be reminiscent even as is the author.

Oh! there's a clue found in the Introduction written by Mr. Albert Jay Nock of the *American Magazine*. Mr. Nock calls it "The History of Democracy in a Mid-Western City." But that hardly tells the story. Tho Mr. Nock has given, in his well written and discerning introduction, a shrewd, or shall I say an appreciative approximation, he certainly has not "touched bottom." The expression is too narrow. It limits the thought and thus the mental picture of the scope of the book. In the first place, the use of the word democracy brings to one's mind, as Mr. Nock himself suggests, "the limited, partial and ignoble connotation of more or less incidental and provisional forms of democracy's practical outcome." And the book doesn't do that at all. It helps one to lift his eyes above all those things and to see the gradually enlarging appreciation of righteousness and its application to the practical affairs of man.

Again, Mr. Nock's expression seems to confine the progress suggested to one "mid-Western city." True, the one city, Toledo, happened to be the theater in which were staged many of the plays enacted, yet not all of them. Toledo was but one of Mr. Whitlock's own theaters of action, and he points out the fact that the same struggles were going on and the same victories being won up in Detroit and over in Cleveland aye, and in many other places. Indeed, he speaks as intimately of the work in state legislatures as in city councils. And we are led to feel that the real theater of action has had no boundaries—that this demand for better things in governmental matters, this quickening of civic consciousness so that greater peace and happiness shall characterize the lives of men has been sweeping over the land, and that really better times are ours and still better times are in sight. Forty years of what? You must first read the book and then formulate your own answer.

"Forty Years Of It" is a charming book of reminiscences. It seems to have been written for the mere pleasure it gave the writer to recount the events and thus to experience again the associations

he had enjoyed with trusted friends and co-workers. From beginning to end it deals with politics and political workers and political measures, yet it nowhere gives facts for mere information. When they are given it is merely incidental, as illustrations of the fact that men's visions are widening and their sympathies deepening. But few dates are given tho interesting historic facts are cited by the score. We are brought into intimate relationship with the much-maligned Governor Altgeld, with Governor Pingree, Tom Johnson, Golden Rule Jones, and others of their kind. But we are not told who they were—merely see them in action. It is all incidental. It is all reminiscent, and the reader is inevitably drawn into the atmosphere. Neither on the title page, in introduction, or elsewhere are we told who Mr. Whitlock is nor what he has done, save as we read between the lines. We discover that he was for eight years mayor of Toledo, successor, in that arduous office, of Golden Rule Jones whose disciple he was, but we are not told when. Nor do we much care.

In a word, Mr. Whitlock goes back in his reminiscences to the summer of his tenth year when, in a little town of Ohio, on a hot summer day, his stately old grandfather, an "aboriginal Republican" and mayor of the town, performed in his presence an act of mercy in freeing, wholly contrary to law, a prisoner, a victim of rum, working out his sentence on the street in ball and chain. From this interesting incident we are led onward and allowed to see the young man develop and finally emerge from worshipful reverence of all things Republican into an almost equal devotion to the principles of Free Trade and the homely everyday virtues of civic righteousness. We see him a little later as one of a group of well-known and highly trusted reporters for the great dailies of Chicago. He was, indeed, a member of the somewhat celebrated "Whitechapel Club" made up of newspaper writers, artists, musicians, lawyers, and other professional men who, in those transition days, were doing their own thinking. This was just after the tragedy of the hanging of the Chicago anarchists when the minds of thinking men were being troubled, the souls of just men stirred, and the passions of young men fired. A great school this was for a young fellow morally keen and mentally alert whose civic thinking had been started by the unorthodox and humane act of the old Republican mayor of the little Ohio town.

We follow him on as he begins to read law in the office of Senator John M. Palmer of Springfield, Illinois, just after John P. Altgeld becomes Governor. At this time, to meet his financial needs,

he was also occupying a position in the office of the secretary of state. Here he was brought into rather close intimacy with Governor Altgeld for whom he had great admiration and whom he convincingly paints as a martyr to the savagry of party politics as yet unenlightened by a developed civic conscience. He tells of Altgeld's pardon of the three anarchists then in prison. Mr. Whitlock himself had the great joy of making out the pardons for these men and of taking them to the Governor for his signature.

We continue to follow him as, his law studies completed, he goes back to Ohio, to Toledo now, to begin his practise. But Mr. Whitlock was not cut out for a lawyer, certainly not for a criminal lawyer, as shown early in his practise when, acting as attorney for a humane society, he had successfully prosecuted a young German for failing to provide for his wife and children. The court had sent the young man to jail for punishment. As if that would help him to provide for them! He saw the irony of it! He saw the uselessness, perhaps the injustice, of his own success and vowed that he "could never again prosecute anyone for anything." But there were other things to do in the law, and he got on. We soon find him associated with Golden Rule Jones in that great leader's heroic struggles for the rights of the people of Toledo. He was evidently a tower of strength to Mr. Jones, and was himself selected, much to his own surprise and against his own better judgment, as his successor. Thru his four campaigns for election as mayor we again follow him with interest and during his eight years of service in carrying out the great program of reform. For one interested in such reforms it makes a fascinating story. And it is well told.

A book of reminiscences, I have called "Forty Years of It." And a very welcome one it is. We are led into an intimate acquaintanceship with and shown the humane side of such men as Frank Hunt Hurd, "Petroleum V. Naseby," Joseph Medill, James G. Blaine, John M. Palmer, John P. Altgeld, Golden Rule Jones, Tom Johnson, Lincoln Steffens, Finley Peter Dunne, and others of their kind. Now, the man who can do all that in such a delightful manner and who, in addition to that, can keep uppermost in the reader's mind the progress of the development of a great abstract idea, that of civic righteousness, and can show that in the development of that idea he is merely using these men and their doings, each in his own field and in his own capacity, as illustrations—such a writer is worth reading. His publishers should find ready market for the products of his pen. And I hereby serve notice upon Mr. Whitlock's publishers, present and prospective, that my name should be added to

their mailing list of his writings. Checks will follow promptly upon receipt of books.

As Mr. Whitlock is not primarily a lawyer, at any rate not a criminal lawyer, tho he has probably practised in the courts for many years, so he is not a politician tho for many years he was in the very thick of political battles. What is he? A reformer? He doesn't want to be so considered, that is, as a typical reformer, nor can we thus classify him since his thoughts are more fundamental, and his remedial measures more sane, and his accomplishments more and greater than those of any "professional" reformer that comes to my mind at this writing.

What is he? A novelist, a poet, an artist; he is gentle, refined, sensitive; he is modest, retiring, shrinking; he is unselfish, self-sacrificing, self-effacing; I say that he is all these tho I do not know him personally and his book nowhere thus characterizes him. But that is what we read between the lines all unconsciously put there in telling how civic righteousness has been developing. He did not want to hold office—to engage in strife, to stand in the limelight, but the very circumstances in which he was placed coupled with the kind of man he was forced him to the front. And, be it said to his credit, he did not shirk as, be it said to our shame, so many of the rest of us do!

Mr. Nock, in his Introduction, speaks of Mr. Whitlock's life as a tragedy—"the tragedy of a richly gifted nature denied the opportunity of congenial self-expression." A tragedy, it may be, but yet one well worth while even to the one suffering it, for how else could he have served mankind so effectively? It needed just such a man as Mr. Whitlock to perform the rare service thus rendered. A rare combination he presents; a poetic temperament, an idealistic nature, a richly gifted imagination, the mind of a psychologist, a tender heart, a highly developed ethical sense and a keen sense of duty, combined with a shrewd common sense, a varied experience, and great administrative ability. Thus gifted, Mr. Whitlock could easily diagnose the disease that had fastened itself upon democracy. He could see, too, that the prescription usually made and commonly used would not accomplish the desired result. He knew that the passage of laws, even the enforcement of laws, deals only with surface manifestations. They do not touch the deep-lying causes of society's disease. That was doubtless the reason why, after his experience in prosecuting the German for neglecting his family, he refused again to act as prosecutor. Such work doesn't get anywhere. The real sore is too deep to be reached by such a probe. Mr. Whit-

lock well states the case and clearly suggests the only available remedy. Let me quote:

"We may have efficient governments in our cities, and honest governments, as we are beginning to have everywhere, and, happily, are more and more to have, but the great emancipations will not come through the formulae of Independents, Socialists, or single-taxers, nor through Law and Order Leagues, nor Civic Associations. Down in their hearts these are not what the people want. What they want is a life that is fuller, more beautiful, more splendid, and, above all, more human. And nobody can prepare it and hand it over to them. They must get it themselves; it must come up through them and out of them, through long and toilsome processes of development, for such is democracy."

This development of democracy is indeed a process of education, education being defined in the most fundamental way as the development of an inner life. And this process can not be hurried. An attempt to do so does more harm than good. The situation and the process are well described in the quotation used. An educator, even an educational psychologist, could not improve upon it. When Lincoln Steffins came from his first interview with Golden Rule Jones he seemed somewhat cast down, and explained his depression by saying to Mr. Whitlock, "That man's program will take a thousand years." So it will, and longer than that, but, as Mr. Whitlock says, "There is no other way."

Yes, forty years of it—forty years in the development of civic righteousness. The work is not completed, only well begun. But *it is begun*. Much is seen to have been accomplished and the mere reading of the story tends to make one somewhat optimistic. But we must not rest too comfortably in our optimism for the forty years mentioned here, even if not the first, are not the concluding forty of the "thousand years" that Lincoln Steffins gave for the carrying out of the Jones program.

A. J. LADD

Department of Education,
University of North Dakota

University Notes

Matriculation Many think that the Freshman is rightly named.

Lectures However that may be, he frequently comes to the institution of higher learning from the cloister of the home and and the retreats of provincial life with but little appreciation or even comprehension of the complexities of the new situation and the new work. He is decidedly handicapped and often ill-at-ease in his new and strange surroundings. Various institutions are doing various things to assist the new arrival to "locate" himself. The first semester of the present year the University of North Dakota inaugurated a movement that seems to have accomplished something in this direction. A course of sixteen lectures was arranged, one a week, presenting various phases of student life and university activity. It was required of all freshmen without exception, and bore one credit toward graduation. It was popular with the class, the great majority speaking of it in high terms of appreciation and recommending its adoption as a permanent feature. The course is as follows:

1. Responsibilities and Opportunities of Student Life. Two lectures.
2. History of the University (Illustrated). One lecture.
3. The Art of Study. Two lectures.
4. Personal Hygiene. Three lectures, to men and women separately.
5. The Art and Architecture on the Campus. One lecture.
6. The Place and Value of Music in Education. One lecture.
7. The Uses of the Library. Four lectures.
8. A Consideration of the Fields of Knowledge. Two lectures.

Interfraternity Council The men's social fraternities at the University have taken an important forward step in the

organization of "The Interfraternity Council of the University of North Dakota." The purpose of the organization is to promote good fellowship among the members and the student body and to cooperate in matters of general fraternal interest. The academic men's fraternities now at the University are Alpha Kappa Zeta, Alpha Lambda Rho, Delta Sigma, Phi Delta Theta, Sigma Chi, and Synergoi. The women's fraternities are Alpha Phi, Bet Gamma Psi, and Kappa Alpha Theta and they are organized into an association called "Pan-Hellenic."

The interfraternity organization has a relation to the fraternity

similar to that which the commercial club has to the business man of a progressive city. It is a recognition of the common interest of all the fraternities and of the fact that the best interests of an individual fraternity are fundamentally identical with the best interests of the University as a whole. By proper co-operation it is easy to solve many problems impossible for an individual and the friends of this movement hope to find it a means for solving some of the present problems and promoting the general welfare of student life.

Reorganization of the Athletic Association The recent revision of the Athletic Constitution indicates a change in the policy of the control of athletics at the University. It is a long step in the improvement of the athletic situation and credit should be given the out-going Board for their work in framing the new constitution. The responsibility of the faculty for athletic control was recognized by the placing of three members from this body upon the Board, one of these to be the Physical Director. This in itself is a great improvement as it is quite sure to bring to the association the services of men of influence and some who have had experience in dealing with similar situations in other institutions. The reduction of the number of student members from eight to three reduces by just so much the element of fraternity politics, an element which has done much to injure athletics everywhere. With the majority of the members of the Board holding their position from one year to another it will be possible to carry out a continuous policy.

This reconstruction should bring an immediate improvement in our athletics. This does not mean so much the actual winning of games as an improvement in the university spirit and in the financial condition of the Association. The actual winning of games will come with the improvement in spirit. There are three things necessary for successful athletics: first, a wise, well-considered, continuous policy; second, strong financial support; third, the backing of the entire university group both faculty and students. Of these three the last is the most important and it is the hope of the new Board that they may see a much needed improvement in the support of our athletic teams by student and faculty bodies. The students must be made to feel that the teams belong to them and that the student body is responsible for the condition of the teams that represent them. That our students are beginning to recognize this is shown by the fact that they saw the defects in the old constitution and were willing to give up the powers which they formerly held for the welfare of athletics as a whole.

The New Entrance Requirements The University of North Dakota has recently made a few changes in its entrance requirements. These are in harmony with the trend of thought and of practice, on that situation, thruout the country. Early in the year the Committee on Students' Work appointed a sub-committee consisting of Dean Joseph Kennedy of the School of Education, Professor O. G. Libby of the Department of History, Professor G. A. Abbott of the Department of Chemistry, Professor William G. Bek of the Department of German, and Professor C. C. Schmidt of the Department of Education and Superintendent of the Model High School, to investigate this question and to report back its findings and recommendations. This it did after a careful study and a thoro discussion of the whole matter.

The Students' Work Committee in turn discust the various phases ond bearings of the sub-committee's report and later made its own recommendation to the University Council. This was substantially the same as the report of the sub-committee, with only a few verbal changes in the details.

The Council, after a thoro discussion, adopted the following plan, which was substantially the one reported to it unanimously by the committees:

- I. English-----3 units (required of all)
- II. Three units in one, and two units in another of the following groups; or two units in each of three groups:
 - (1) Foreign languages.
 - (2) Sciences (chemistry, physics, biology, geology, physical geography, physiology)
 - (3) Social sciences (history, political science, economics)
 - (4) Mathematics.
- III. Ten (10) units out of the 15 required for entrance must be in I and II, and must include at least one unit of mathematics.
- IV. The remaining 5 units may be offered from any subjects accepted in accredited high schools toward graduation.

A "unit" means, as usual, a year's work in a subject, coming five times a week. The new plan encourages to a greater extent than did the old, reasonable concentration; and it recognizes to a greater extent the autonomy of the high schools. This plan will go into effect in September, 1915, and prior to that time a student may enter the University either under the new or under the old "entrance requirements."

Founders' Day

The celebration of Founders' Day is now a permanent number in the annual program of university activities. It is a time when alumni return to renew old associations, when friends and well-wishers gather to exchange notes and to express loyalty, and when the enthusiasm of the student body is kindled. The form of observance has practically settled down to three features: in the afternoon a game of basket ball is played by the teams representing the University and the Agricultural College; at 6 o'clock a dinner, accompanied by the usual toasts and music, is served at the Commons to students, faculty, alumni and friends, and at 8:30, at the gymnasium, an address appropriate to the occasion is given by some prominent friend of the institution.

The celebration this year was fully up to those of former years in point of view of numbers and enthusiasm. The ball game was somewhat disappointing in that the opponents won, but the feeling shown was excellent, and sometimes a defeat is, in the long run, worth more than a victory. The large dining room of the Commons was crowded at the dinner hour by a jolly, enthusiastic throng of boys and girls of from twenty to seventy-five years of age. The progress of the meal was enlivened by impromptu songs and yells from various groups of students, and a very happy time was experienced. At the conclusion of the dinner proper President McVey, acting as toastmaster, in appropriate and witty remarks, presented the various speakers. The principal address was given by Justice A. A. Bruce of the State Supreme Court, formerly Dean of the University Law School. He spoke with force and eloquence on "Growth and Transition." He was followed by Dean E. J. Babcock speaking on "Our University." Dean Babcock has been a leading factor in the life of the University for very many years, and he loves the institution as a mother loves her child. Fred J. Traynor, of the class of 1903, Law 1904, spoke for the alumni on the delightful topic, "Recollections." Mr. Traynor was at his best. Ten years out of the University has not dampened his enthusiasm nor cooled his ardor. He believes in the institution and has the happy faculty of making others agree with him in the estimation. The students were represented by Mr. J. Earl Loudon, and they were worthily represented. He spoke on "Progress of Events," and showed very clearly that the institution is not standing still.

After the dinner all repaired to the gymnasium to hear Dr. Brannon's address on "Twenty Years of University Life." In this address the speaker gave a series of very vivid mental pictures as he traced the development of the institution during the twenty years

of his connection with it. Coming as it did, almost on the eve of his departure, it was very appropriate, very closely listened to and served a good purpose in many ways. All in all, the day was very profitably spent by and for the University.

Law School Happenings

The most noteworthy innovation at the Law School during the current year is the appearance of the first number of a series of law bulletins. They are to be issued from time to time, probably quarterly. The leading article in the first number is by Professor Joseph L. Lewinsohn on the subject of "Agreement Under the North Dakota Code." The plan is to have an article each time on some phase of the local law written by a member of the faculty, or of the bench and bar of the state. Then come notes on recent decisions by the Supreme Court of the State, written by the student editors; and the third department consists of law school notes and alumni personals. As the first number has been sent to a large number of the subscribers to the Quarterly Journal, a more lengthy explanation of the scope and purpose of the publication may be unnecessary here. If any reader, who has not received a copy, is interested and will notify Prof. Roger W. Cooley, the editor-in-charge, one will be mailed to him.

Professor Joseph L. Lewinsohn has sent in his resignation to take effect this coming June. He will go into the practise of law with Mr. Eugene Kline in Los Angeles, Cal. Professor Luther E. Birdzell, who was granted a two years' leave of absence to act as chairman of the State Tax Commission, will return to the University next year and will fill the vacancy caused by Professor Lewinsohn's departure.

Manitoba Exchange Lectureahip

The exchange lectureship with the University of Manitoba which was inaugurated two years ago is more and more highly regarded as time passes, and the visits from our friends from the North are looked forward to with distinct pleasure by the entire University community. Two such visits have been enjoyed the present year.

The first of these visits was made by Dr. A. W. Crawford, Professor of English, who was with us for two days during the closing week of January. Dr. Crawford spoke on Friday afternoon, January 23, before a large gathering of students, faculty, and townspeople on "Hamlet, as a Patriotic Prince." It was not only a very pleasing address delightfully rendered, but it showed deep thought, a clear mastery of the entire situation, and marked originality of

interpretation. The next morning, January 24, Dr. Crawford gave the regular weekly Convocation address, using as his subject, "Democracy and Literature." The address was very pleasing, the speaker's charming personality adding much to the enjoyment of the occasion.

The next visitor, Dr. N. B. MacLean, Professor of Astronomy, came a month later, the last week of February. On the afternoon of Friday, the 27th, he gave an illustrated lecture on "Some Theories of World Evolution." Tho dealing in concepts not ordinarily familiar to the lay mind, he was decidedly interesting and was followed with close attention. The next morning at Convocation Dr. MacLean spoke again, this time on "The Contributions of Astronomy to Science." Here was also given, incidentally, a brief historical sketch of the development of the science and an appreciation of the leaders in the work. In both these addresses Dr. MacLean showed conclusively that scientific thought, even involving the use of many technical terms and much statistical matter, can be made interesting to people not technically trained.

The first representative from the University of North Dakota was Dean E. J. Babcock of the School of Mines. His visit was made in November, speaking in the evening of the 25th before the University faculty and the Scientific Society of Winnipeg on "Economic Factors in the Development of the Northwest." The next afternoon he spoke before the University community—students and faculty—on "University Training and Industrial Life." The next and last representative for the year was Dr. O. G. Libby, Professor of History. His visit was in March. He gave two addresses on the following topics: "Scholarship and Politics," and "Our New Northwest."

The Mississippi Valley Historical Association The Mississippi Valley Historical Association will hold its annual meeting for this year at Grand Forks on May 26, 27 and 28. The organization began in 1908 and now has a membership of more than 1,000, chiefly residing in the Middle West. Last year the meeting was held at Omaha, Nebraska. Of the meeting this year one half-day session will be devoted to a joint meeting of the Mississippi Valley Historical Association and the North Dakota State Historical Society. Two half-day sessions will be given to the teachers' section and one to the newly organized sociology section. The meetings will be held partly in the City and partly at the University. Professor M. D. Larned of the Department of German, University of Pennsylvania, will make

the principal address of the last day on some subject connected with his researches in America. On Wednesday evening the University Sock and Buskin Club will present an historical pageant on the campus of the University. The sessions of the Association will close by a banquet given to the visitors by the Grand Forks Commercial Club. For this a good program of toasts has been provided including addresses by Professor Larned, Dr. Luther Kuhns, Secretary of the Luther League of America, Justice A. A. Bruce, and President McVey.

There is good prospect of a very successful meeting this year. Papers will be presented by representatives from the Universities of Manitoba, Pennsylvania, Nebraska, Iowa, Minnesota, Indiana, Montana, and Illinois, besides by a number of local speakers.

Resignation of Dean Brannon To almost the entire University community the resignation of Dean Brannon, a few weeks ago, came like a shock. He had been connected with the University so long—a full fifth of a century—and had been so prominently identified with its most vital interests that scarcely a thought had arisen as to a danger of losing him.

Dr. Brannon came to the institution in 1894 as head of the Department of Biology, a position which he has held to the present time. In 1905 he was appointed Dean of the School of Medicine established in that year by the Trustees. He acted as Dean of this school for six years being very largely instrumental in effecting its excellent organization and in its gaining the reputation that it enjoys among medical schools of good standing. In 1911 Dr. Brannon resigned the deanship of the School of Medicine to accept a similar position in the College of Arts just then made vacant by the resignation of Dr. George S. Thomas. He was still acting in this capacity when the tender of the presidency of the University of Idaho, all unsolicited, came to him a few weeks ago.

Dr. Brannon was largely instrumental in securing the establishment at the University, in the legislative session of 1906-1907, of the State Public Health Laboratory which has come to be recognized as of such large value in the improvement of health conditions in the state. Two years later almost wholly thru his initiative the State Legislature made provision for the establishment and maintenance of a Biological Station on the shores of Devils Lake. The Station was placed under the control of the University to be directed by its Biological Department. Dr. Brannon was made Director, and during the years that have passed has carried on extensive in-

vestigations and experiments dealing with plant and animal life of that and other parts of the state. The results of these studies thus far pursued promise to be of great value to the state from both the commercial and scientific points of view.

But not only has Dr. Brannon been very active in matters touching the University, he has been all these years one of the most prominent of the public spirited citizens of the city of Grand Forks, the location of the University. In nearly every movement that has been inaugurated for the betterment of the city during these twenty years Dr. Brannon has taken a prominent part, and today he holds the respect and esteem of all classes of people in a most remarkable manner. The entire community regrets his departure.

While Dr. Brannon has been eminently successful as a scientist, as a student of research, it has long been felt by those who have known him best that his greatest usefulness would be found in the larger and more open field of administration. He has accepted the presidency of the State University of Idaho and is to assume his duties on the first of April. Taking to his new field of work these splendid qualifications, together with abounding health, a passion for service, and a vigorous young manhood in its very prime, Dr. Brannon is to be congratulated upon the opportunities that lie before him. And the great State of Idaho is likewise to be congratulated upon the quality of educational leadership that she is securing.

The high appreciation in which Dr. Brannon is held has been shown in many ways. Various organizations of which he has been a member, including the Commercial Club of Grand Forks, have tendered him banquets and receptions and other gatherings at which appreciative speakers have told in detail his many accomplishments and achievements; churches have been glad to have him fill their pulpits and thus give the public opportunities to hear him speak. Private dinner parties almost without number have swelled the attentions. All in all, he has been a much fêted man, and he goes to his new post of duty with the hearty congratulations and the warm God speeds of hosts of admiring friends.

Professor Vernon P. Squires, head of the Department of English for seventeen years, has been appointed by the Trustees to the deanship made vacant by the resignation of Dean Brannon. Dr. Robert T. Young, Assistant Professor of Biology, has been promoted to the professorship of Biology and has also been appointed Director of the Biological Station.

**Dr. Ruediger's
Resignation**

Dr. Gustav F. Ruediger came to the University in the summer of 1907 to take charge of the State Public Health Laboratory that the State Legislature had recently established. The function of the Laboratory was to safeguard the public health by making sanitary analyses of drinking water, ice and (under special arrangements) of milk, and microscopic diagnosis of diphtheria, consumption, typhoid fever, rabies, and pathological tissues, and in other ways come to the assistance of Boards of Health and physicians in all parts of the state.

The work was relatively new, wholly new to North Dakota, and few, even of those who would later make the largest use of the Laboratory, knew anything about it. But Dr. Ruediger came to the work well equipped. A trained bacteriologist he knew just what to do and how to do it so as to make the Laboratory of real service. The work was quickly begun and at once demonstrated its great usefulness. In its results it has greatly surpassed the expectations of its advocates.

Realizing that the effectiveness of the Laboratory would depend largely upon the promptness with which reports could be received by the sending physician, Dr. Ruediger early urged the establishment of branch laboratories in different parts of the state to serve, under the general direction of the central office, their own local communities. Two branches have thus far been established at central points, one at Bismarck and the other at Minot thus making the facilities easily accessible to every section. The work has grown very rapidly and is now recognized as of inestimable value in the work of fighting disease.

In connection with this work Dr. Ruediger has won a high place for himself in the estimation of the public at large, in professional, in social, and in business circles. While, in his official capacity, he has visited many sections of the state and assisted materially in the solution of their health problems, yet to the city of Grand Forks he has contributed the most, and it is by the people of that city and the University proper that his loss is most keenly felt.

In speaking of the high appreciation in which Dr. Ruediger has come to be held and the forms in which that appreciation has been shown, one might repeat what has just been said of Dean Brannon. Indeed, in nearly all of these functions and gatherings called together to voice appreciation and to express regrets the two men have stood side by side and have been equally honored.

Dr. Ruediger goes to LaSalle, Illinois, to assume charge of a privately endowed municipal Public Health Laboratory embracing the

work of three cities and of a large contiguous territory, and all much more intimately and closely than here. The advantages of that location over the one he is leaving are found in larger freedom from details, in greater opportunities for individual research, and in more funds for pushing scientific enquiry. While Dr. Ruediger has shown himself to be a man of affairs, a man among men, public spirited in a marked degree, it is yet as a student of research, in his laboratory, that he is most at home. He has already achieved notable results and now, with more time and larger funds at his command, he can more fully satisfy his craving for scientific knowledge and his ambition to wrest from bounteous but reluctant Nature some more of her secrets for the use of man in his age-long struggle against disease.

To succeed Dr. Ruediger as Director of the Public Health Laboratory the University Trustees have selected Dr. Leveritt D. Bristol, Professor of Bacteriology in Syracuse University. Dr. Bristol is a graduate of Wesleyan University, Middletown, Connecticut, with his medical degree from Johns Hopkins. He has served Syracuse University four years.

The University and the Kansas City Convention Among the great conventions of the winter the Quadrennial meeting under the auspices of the Student Volunteer Movement which was held in Kansas City, Mo., Dec. 31 and Jan. 1, 2, 3, and 4, holds a unique place. It was attended by 3,984 students and instructors representing 755 Schools and Colleges of this country and Canada. The object of the meetings was to furnish information and to arouse enthusiasm in regard to the great work of modern foreign missions. Dr. John R. Mott, the greatest missionary statesman of our time, presided and the meetings were addressed by many speakers, including missionaries from the field, prominent educators, and publicists of note. The delegates were seated by states and made a very impressive showing, many of the larger states being represented by several hundreds. North Dakota was represented by about thirty delegates, eight of whom were from the University. They were Professor Vernon P. Squires, Mr. Harry Wells, Secretary of the Y. M. C. A., Miss Carrie E. Smith, Miss Luella Coe, Mr. Fred G. Conaway, Mr. Harry N. Fitch, Mr. Ernest Coon, and Mr. Horace G. Webster. At the regular weekly Convocation held at the University on Saturday, January 10, the hour was given to a report of the meetings by some of the University's delegates, and on the following day reports were given in several of the churches in the city.

Meeting of American Sociological Society The American Sociological Society held its annual sessions in Minneapolis December 27 to 30, 1913. The various features of this broad subject which came up for special consideration were those of race, nationality, neighborhood, colonial administration, education, and international relations. Particularly illuminating papers were presented on "The Neighborhood In Social Reconstruction" By Robert A. Woods of South End House, Boston; "Racial Assimilation in Secondary Groups with Special Reference to the Negro," by Albert E. Park, Boston; "The Polish Situation; an Experiment in Assimilation," by W. I. Thomas, Chicago, and "The Relation Between China and the United States," by Charles R. Henderson of Chicago who spent several months in the far East during the past year. Special interest also attached to a brilliant paper presented before the joint session of the Economists and Sociologists by Albion W. Small of Chicago entitled "Visions of Social Efficiency." Likewise two conferences were of importance and really mark a step in advance in the program of the national society. One of these, presided over by John M. Gillette of the University of North Dakota, pertained to the teaching of sociology in public schools below college grade; the other to the teaching of sociology in normal schools, led by F. R. Clow of Oshkosh, Wisconsin. Out of these conferences on sociology and education came the appointment of a committee of three consisting of Professors Clow, McKittrick, and Gillette, the function of which is to investigate the subject of sociology and the training of teachers. The national Educational Association asked for sociologists' opinion on this topic a few years ago. Cooperation between the two national associations will doubtless take place looking to methods of advance in the given direction.

Biennial Conference of Deans of Women The Sixth Biennial Conference of Deans and Advisers of Women in State Universities met at Hotel La Salle, Chicago, December 16, 17, 19, 1913. With the exception of the Adviser of Women in Cornell University at Ithaca, New York, the members of the Conference are confined to the Deans and Advisers of Women in State Universities as the problems in those institutions are essentially different from those of other universities for women. Dean Talbot of the University of Chicago and Dean Potter of Northwestern are always invited to the Conference and always add to the interest of the discussions of the various questions.

Among the topics presented for discussion at the December meet-

ing were the following: "The Housing of Women Students," "Student Government," "Sororities," "The Social Life of the Student," "Educational Questions Affecting Women Students," and "Vocational Guidance."

Dean Potter of Northwestern University invited the Conference to dinner at one of their cooperative lodging and boarding houses, and not only explained the working of the system but gave us a practical insight into it by taking us thru the houses. Mrs. Gertrude S. Martin, Adviser of Women at Cornell University, who has made such a careful study of vocations other than teaching for women that she is an authority, gave a most interesting resume of her research work in regard to this subject. As a further discussion of this subject, Miss Bennett of the Intercollegiate Bureau of Education of Chicago, gave the Conference an illuminating practical talk on vocational guidance, and emphasized the fact that the crying need among college women who expect to enter positions other than teaching, is for many positions a knowledge of stenography, for all positions, accuracy, definiteness, a more serious attitude towards their work, and a greater willingness to do more work, for the compensation they expect. Her statement was, "The college woman has yet to be justified commercially."

Another of the interesting features of all of these Conferences is the meeting of the deans with a committee from the National Pan-Hellenic Conferences. The hearty cooperation of the National Pan-Hellenic Conference and the Deans of Women is one of the most helpful factors in guiding the sorority life in the different universities. The National Pan-Hellenic stands always for "University first, Sorority second," and their whole attitude is for sanity, scholarship, and general efficiency in University life.

When this Conference was organized it laid down as one of its fundamental principles that as the deans had met for serious work, they would forego all social engagements; and in spite of the many temptations to break this rule has steadily refused all tendered luncheons and banquets and have spent the entire time in serious, helpful discussions. At times, even the evenings have been given to the work of the Conference. In the alternate years the deans of women of most of the larger universities meet with the Association of Collegiate Alumnae, thus keeping in touch with the broader field. The inspiration of these closed meetings, their practical suggestiveness, their progressive ideas, their efficiency in unifying the State Universities in their work for the women students, cannot be over es-

timated and no University can afford not to be represented at these Conferences.

Miss Ella L. Flton, Dean of Women at the University of North Dakota, represented this institution at the Conference.

The University and the Modern Language Ass'n The meeting of the Central Division of the Modern Language Association was held at the University of Cincinnati, December 29-31, 1913. This Division represents by far the larger territory of the two sections of the Association, inasmuch as it comprises everything west of the Alleghanies. The eastern section met simultaneously at Harvard, combining there in a joint meeting with the American Philological Association. Next year the Central Division meets at the University of Minnesota. Every fourth year the eastern and central divisions have a joint meeting. The meetings were well attended in spite of the fact that quite a number of the members went east, being drawn there by the triple attraction of a visit to Harvard, a joint meeting with the American Philological Association and the address of a western man, Professor Holdfeldt, of the University of Wisconsin, as President of the general association. The chairman for the Central Division meeting was Professor T. Atkinson Jenkins of the University of Chicago, while the secretary was that familiar figure in modern language councils, Professor Charles Bundy Wilson of the University of Iowa.

For the most part, the papers on the program were more or less technical and of interest to those working in special fields. A very suggestive discussion was begun by Professor Julius Goebel of the University of Illinois, on "The Drift of Present German Literary Criticism," in which he suggested the dawn of a new era in the forsaking of some of the old dry-as-dust philological methods in modern literary study. Another very interesting paper was presented by a teacher in the Cincinnati schools who has been investigating children's games and has apparently demonstrated that among the children of today, in this matter-of-fact age, there are acting the same principles that actuated our semi-barbarous ancestors in prehistoric times.

By far the most important thing of general interest were the reports of the committees on Grammatical Nomenclature, and Simplified Spelling. The former committee which is charged with the task of harmonizing the terms used in grammar presented a lengthy report on the subject showing definite progress, and a copy of this may be secured by applying to the Secretary of the Association, Professor

W. G. Howard, of Harvard. It is evident that the work of this committee, if carried out, will aid students of different languages materially, since the same terms for parts of speech, etc., will be used in each language.

Still more important to the common school teachers was the report of the Simplified Spelling Committee. For some time this committee, by means of a questionnaire, has been endeavoring to get the attitude of the Modern Language Association towards the work of the Simplified Spelling Board. Their report on the replies received shows, firstly, that the members of the Association are distinctly in favor of some revision of the spelling; secondly, that they wish to go about it very conservatively; thirdly, that they are not in complete harmony with all the methods and operations of the aforesaid Board. In many cases, such as the question whether the Association should recommend the revised spelling for use in the public schools, the replies received pro and con almost exactly balanced. The practical point was brought out that the public school teachers and school boards in many sections are anxious to adopt a system of spelling which shall remove some of our present difficulties, but feeling their own position insufficient, are anxious that the colleges and important educational organizations, such as the Modern Language Association and the National Educational Association, shall publicly put the stamp of approval upon revised spelling before they (the public schools) adopt it to any extent. The discussion on this subject was extremely lively and indicated the strength of the opposing views.

The hospitality of the University of Cincinnati was most cordial and all those who went to the meeting had no cause for regret upon that score.

The University of North Dakota was represented at this meeting by Dr. Henry R. Brush, Professor of the Romance Languages and Literatures. Dr. Brush presented two papers, one before the Romance Section on "French Prose Composition" and the other before one of the General Sessions on "The Technical Use of Proverbs and Sentenzen in Crestien de Troyes." Dr. Brush also opened the discussion of Professor Gay's paper on "Hue de Rotelande's Ipomedon."

Announcement

THE Quarterly Journal is a periodical maintained by the University of North Dakota. Its primary function is to represent the varied activities of the several colleges and departments of the University, tho it is not limited to that. Contributions from other sources are welcomed, especially when they are the fruitage of scientific research, literary investigation or other forms of constructive thought. Correspondence is solicited.

The subscription price is one dollar a year, single numbers, thirty cents.

All communications should be addressed,
THE QUARTERLY JOURNAL,
University, North Dakota

Editor's Bulletin Board

THE Quarterly Journal for October, 1914, will be scientific in character. The contents will be made up, in the main, from the following list of topics:

"A Further Investigation of Radioactive Conditions in North Dakota," by Dr. Abbott; "Engineering," by Professor Becker; "A Study of Special Cases of Rieman Surfaces," by Professor Hitchcock; "Undiscovered Plants," by Dr. Pfeiffer; "Notes on Optical Pyrometry," by Dr. Spence; "Daily and Seasonal Variation of the Photographic Intensity of Light," by Dr. Stephenson, and "Advantages of the Long Low Aerial for Long Waves," by Dr. Taylor.

The School of Education

UNIVERSITY OF NORTH DAKOTA

FUNCTION: The preparation of teachers and principals for secondary schools, superintendents for city schools, and instructors for Normal schools and colleges.

ENTRANCE REQUIREMENTS. Two years of work in the College of Liberal Arts regularly required.

DEGREES AND DIPLOMA: The degree of Bachelor of Arts and the Bachelor's Diploma in Teaching (the professional instrument which is accredited as a First Grade Professional Certificate), on the completion of the regular four-year course of study.

Graduate courses are offered leading to the degree of Master of Arts.

SPECIAL CERTIFICATES: In Commercial work, Domestic Science, Drawing, Manual Training, and Music, on the completion of two years of prescribed work.

MODEL HIGH SCHOOL: The Model High School for observation and practice in all lines of high school work is in full operation.

GOOD SENSE: If you aim to practise medicine attend the School of Medicine; if you intend to practise law, attend the College of Law; if you would be an engineer, attend one of the colleges of engineering; and if you are to teach, enroll in **THE SCHOOL OF EDUCATION.**

For information, address

DEAN JOSEPH KENNEDY,
University, N. D.

The College of Liberal Arts

UNIVERSITY OF NORTH DAKOTA

Twenty-four departments offering more than *two hundred* different courses of study.

Specially arranged curricula for those who intend to become social workers or to engage in one of the various lines of business, such as banking, journalism, etc.

One year in the College of Law or two years in the School of Medicine or any of the Engineering Colleges may be elected, thus enabling the student to obtain the degree of Bachelor of Arts and a Law, Medical, or Engineering degree in six years.

Graduate courses leading to the degree of Master of Arts.

For further information, address

THE REGISTRAR,
University, N. D.

The Quarterly Journal

VOLUME 4

JULY, 1914

NUMBER 4

Democracy and Literature*

A. W. CRAWFORD,

Professor of English, University of Manitoba

IT is not an accident that the greatest democracies of the world have produced the greatest literatures. There is the closest inner connection between free government and the art of letters. Democracy is the aspiration of literature, and literature is the expression of democracy. The greatest nations of antiquity, as well as of modern times, have been at once free peoples, and the producers of the greatest literatures. The Hebrews not only were a free people, but gave the world its greatest sacred literature. The city states of Greece not only governed themselves, but gave us Hesiod, Plato, and the greatest epic and dramatic poets of the ancient world. The little isle of Britain was not only the first of modern democracies and the mother of parliaments, but gave the world also Langland, Chaucer, Shakespeare, Milton, Burns, and Wordsworth. Literature flourishes best in a democracy, for there it finds its most congenial home.

1. Recent investigations into the origins of literature bring out the fact that literature in the first instance belonged to the people, and was composed by the people and for the people.¹ It is now thought that the ballad was the first form of literature in our language, and it is essentially the people's poetry. The ballads not only gave expression to the sentiments of the people, but are thought to have been composed by the people in their worship and communal dances. No individual author can be assigned to any of the old ballads, and none of them express individual, but communal, emotion.

In ancient Greece, as in modern countries, poetry in some form was the first literature, and was developed in connection with religious worship, or with the people's religion. The Greek drama is thought to have had its origin in religious ceremony, and was

*An address delivered at the Convocation of the University of North Dakota, January 24th, 1914, in the Exchange Lectureship with the University of Manitoba.

1. Cf. Gummere: **The Beginnings of Poetry**, (Macmillan, 1908.)

the expression of the people's views of life and of their relation to the world. In the truest sense, literature grew out of the life, and thought, and religion of the people.

From this classical literature has come our modern literature and our modern civilization. These have developed together, and had their inspiration in the life and thought of old Greece and Rome as these were expressed in the Greek and Latin literatures. As Ambassador Bryce has said: "The literature, and institutions, and civilization of Greece and Rome are for all modern nations, the first fountain heads of that European civilization, which has swept down to us in a widening current." These early literatures of the people contained the promise of all that is best in our modern life and thought. They were essentially democratic, and have done much to make our modern civilization democratic. Greek and Latin authors sowed the seeds of our modern democracies, and "just as the political ideas of Greece and the political institutions of Rome were a point of departure for the modern world," so the Greek and Latin literatures "have become the common stock of the learned man, the thinkers, and the writers of all modern countries."²

The world of letters is in its very character a democracy,—whether kingdom or republic. The only aristocrats are the Homers who are beggars, the Johnsons who are drudges, and the Wordsworths who are pensioners. It is an aristocracy of personal worth, and of poetic power. Birth and descent have no place in literature, and power belongs only to those who serve the people.

Literature is the history of ideas and ideals. And democracy is an idea or an ideal, than which none probably has permeated the people more. It has been the constant inspiration of poets and writers, especially since the founding of Christianity. It has been the very breath of English poets, and the national literature is the record of the social ideals of the English people. Literature has always been the expression of the people's ideals, and hopes, and aspirations, from Langland's "Vision of Piers Plowman," all the way down the ages, thru More's "Utopia" and Milton's writings, to the revolutionary poetry of Shelley, and the settled political order of Tennyson's "Idylls of the King." All these sing the songs of the people, are filled with enthusiasm for the people, and voice the aspirations of the people.

2. In the early days, as in these last days, poetry has had the characteristics of democracy. Poets and poetry were both of the

2. James Bryce: "The Study of Ancient Literature," in his **University and Historical Addresses**, page 331. (Macmillan, 1913.)

people. The ballads, reflecting as they do the deepest life and thought of the people with their exuberant fancy and their homely yet noble ideals, have had a wonderful vitality, and have powerfully influenced all modern literature. They were both a cause and an effect of that revival of romanticism in the eighteenth century from which has sprung all that is best in the literature of the past century.

Langland's great vision of a "field full of folk,"—a purified people.—is one of the loftiest of all democratic poems. Chaucer's pilgrimage shows us all classes on their way to Canterbury. The cultured and chivalrous knight rubbed shoulders with the coarse and rollicking miller, and the faithless pardoner swindled the very people for whom the poor parson was wearing out his life. The Renaissance once more gave a great impetus to democracy in literature by its revival of the literature of Greece and Rome. Even Shakespeare, often thought so scornful of the people, was quite regardless of kings and nobles, and tumbled them about on his stage for the amusement of the groundlings. He aided the movement of democracy by exposing to the people's gaze the inner life of palaces, and revealing the fact that kings were of like passions with the people.

The only period when English literature can be said to have been aristocratic is the eighteenth century, and then it was decadent. Aristocratic periods have always produced the poorest literatures. Aiming at the excellence of the classical literatures, the Augustan literature had no inspiration of its own, and ended as only a formal imitation. This literature had marks of its own, that show its decadent character. It aimed at an excessive finish, until "style is deemed of almost as much importance as thought." It sought an exclusiveness of diction, that preferred the classical to the Saxon word, and at once revealed itself as over-refined. It cultivated only the aristocracy, and scorned the people, treating them as only the common herd. It had no real sympathy with social ideals, and was not conscious of any aspirations. It was not deeply interested in the future, and had no program of betterment, but looked chiefly to the past, and preferred antique subjects for its verse. It assumed superior airs, and yet had no spiritual message for its own generation, and but little value for ours.³

All this, democratic literature brushed aside and gave us in the new romantic literature the warm pulsating life of contemporary men and women. No greater movement can be found in English

3. Cf. Dowden: "Poetry of Democracy," in his *Studies in Literature*. (Kegan Paul, Trench, Trübner & Co.)

literature than that rise of democracy in the eighteenth century, which was the heart of the romantic revival. Democracy did not rise full-grown, for some of the earlier poets of this period still condescended to the people. Gray loved the village Hampdens, and the mute, inglorious Miltons, but he looked down to them, and sympathized with them as with faithful beasts. Burns was perhaps the first real democrat, for he lived and wrote on a level with the people. He was a mighty man; great in heart and mind and soul, but poor in purse. He was a true man of the people, born to poverty and poetry, and sang the songs that express the real heart of the people.

The greatest democrat, however, was Wordsworth. Born of the better class, he loved and saw the heroism of the humble. He took old and wretched paupers and beggars, and made them heroes and teachers of all after generations. The Leech-gatherer, one of the commonest of men, became to him a hero and an inspiration, and to all who have come after him. As Professor Raleigh says: "Before he delivers his message, the Leech-gatherer is felt to be 'a man from some far region sent,' and when he has delivered his message the old pauper on the lonely moor has won a place beside the great heroic figures of history, or epic, or drama."⁴ Literature, indeed, knows no class distinctions. It is the great leveller, and elevates the noble poor, and humbles the unworthy great.

3. The burden of all great modern literature is the people, and the people's freedom. Democracy, or government by the people, has been the inspiration of poetic dreams, as well as the trend of modern political life. The Hebrew poet said, "The earth is the Lord's, and the fulness thereof." But the modern poet, believing that the Lord's cause is the people's cause, has conceived that the earth is the people's, and the fulness thereof. The old poets saw and helped to bring about the victory of the people over their despots and over all forces that conspired against them. In the great struggle of the common people for their self-realization, the Lord has not been on the side of the strongest battalions, but on the side of the mass of the people. The visions and the dreams of the poets have been more powerful than legions of armed men, and they have prevailed.

Democracy has not needed a special poet, for all great poets have been in her service. Whitman, as the self-appointed poet of democracy, has heralded himself as the special poet of the common people. All great poets, however, have been poets of democracy,

4. **Wordsworth**, by Walter Raleigh, p. 183. (London: Edwin Arnold, 2nd Ed. 1903.)

and have sung the songs of freedom. No theme has been more common than liberty, and liberty is our conception of democracy. The people have never lacked for poets, and there has always been some one to sing their aspirations.

It is only aristocracy that has no poet. Tyranny is unwept, unhonored, and unsung. Despotism creates no enthusiasm, and hence has no poets. In so far as despots figure in early and medieval poetry, they are leaders of the people, and are indeed the people's friends. They are Carlyle's "Heroes" who lead the people for the people's good. They are of the people, and hence are, after all, no true despots. These may be lauded in song and story, but only because they made the people's cause their own. No one has arisen to sing the glories of oppression, or of tyranny, or of slavery. These have no poets, no novelists, no orators. No literature has ever found inspiration in real despotism, or could sound forth its glories, and its hopes, and its ideals. Despotism is dumb, and tyranny is speechless. But freedom has a tongue, and liberty is eloquent, and makes the world resound with its message. Freedom is the common theme and inspiration of literature. Poets sang of freedom long before there was any freedom, and doubtless will sing its glories until all men are free.

Wordsworth spoke of his poetry as dealing "with man, with nature, and with human life." 'Human life' is our social and political relations, and Wordsworth was the first of our poets to have adequate notions of its meaning. Social consciousness began only with the nineteenth, or with the late eighteenth century, and Wordsworth's last division has now become the first. No question can be of greater importance, for it concerns all that is most vital to us as human beings. "No man liveth to himself." It is not strange, then, that social life, liberty, democracy, should have been the one great theme of the nineteenth century. The strange thing is that with all the literature of democracy, the distinct social consciousness had not developed earlier. It is, however, now rapidly growing, and a complete social brotherhood that poets have proclaimed for centuries seems now almost an attainment. Man's welfare and destiny are bound up with the social order, and can only be fully conserved when the social order is made to give consideration to the interests of all men. Only in a democracy can this be accomplished, for democracy is little other than universal brotherhood.

English poetry from the time of Shelley was burdened with a social message. Even before the days of *Sartor Resartus*, English prose had to some extent assumed a social attitude. Shelley, Carlyle,

Ruskin, Arnold, and no less Tennyson, have been prophets of a new and holier order. Carlyle, Ruskin, and Arnold, as has been said, "each turned away from the dominant interest of his youth, in history, in art criticism, or poetry,—to focus the earnest thought of his prime, constantly and earnestly on the anomalies and paradoxes of modern life."⁵ Carlyle, tho not believing in the equality of all men, became a champion of the masses, an apologist for the people. *Sartor Resartus* has been called "one of the first books in which the modern working class is recognized and its condition noted."⁶ And from that time to the present the people have not lacked a spokesman.

The literature of the nineteenth century has inveighed against all things that work against democracy. It resists all class distinctions, and denounces wealth as a social standard, and pleads the cause of the people. Were it not for the censures and the re-iterated indictments of literature, wealth would settle itself down to believe in the divine right of riches,—a more dangerous doctrine than the old divine right of kings. But literature keeps forever showing as with Carlyle that it is wrong, or as with Ruskin that it is unlovely, or as with Arnold that it is barbarian. Literature keeps wealth's nest of self-satisfaction and contentment forever stirred up, and will do so until democracy, arising into loveliness as well as into strength, shall take its place in beauty and in power, and the people shall be given the privilege not only of food and clothing, but of wisdom and literature, of beauty and divinity.

Literature has persistently ridiculed and exposed the partiality, the profaneness, the ugliness, the falseness, and the wrong of the ideals of special privilege, such as wealth and fashion have indulged, possess only by the few. It claims all good things for the people. It insists on liberty and opportunity for all, and will insist until all are free. Even when at times the Church has complacently accepted the ideals of special privilege, literature has refused to do so, and has indicted both society and the Church. Langland not only pleaded the cause of the people, but made a sweeping indictment of the Church of his day,—the first real criticism of the Church in English literature. Modern poets and writers have many of them championed the cause of the people, and have opposed all aristocratic tendencies in society. No contributions of the rich or privileged have for long silenced the voice of literature, or stifled its plea for freedom.

Literature as a record of ideas and ideals belongs to the history of human thinking, not the history of deeds. Ideas, not forces, rule

5. Vida D. Scudder: **Social Ideals in English Letters**, pp. 123-4. (Boston: Houghton, Mifflin & Co., 1898.)

6. Scudder. **Op. cit.** p. 150.

the world, and literature and its ideas have been among the world-rulers. History, as a record of the achievements of the race, contains an account of the past, and exhibits the forces that have operated in society to bring it to its present development. But literature is a record of the ideals of the race, only some of which have been attained and many of which still belong to the unachieved future. It tells of what "never was on sea or land," but only in the hearts and imaginations and hopes of some of the seers of the race. These unachieved ideals have been making themselves forces in the world, and have been getting themselves realized. Democracy is one of these ideals that has been working itself out among men.

4. The form that literature has assumed in each age has been determined by the conditions of the people, and the most recent forms are the most distinctly democratic. The ballads were in every sense the people's literature, being composed by the social group and not by any single individual. When at their communal dances and festivities, every one was free to make his contribution to the poems, and each had a part in their presentation. The epic seems to be somewhat less democratic, for it was probably composed or compiled by one man, and recited by him or another to an audience that would naturally consist of the retainers of some noble assembled in his great hall. On its surface, then, the epic seems almost wholly aristocratic, and oblivious of the common people. But in these poems as a matter of fact the heroes are men whose devotion to the people had exalted them to leadership, and whose deeds had made them illustrious as champions or saviours of the people. These great friends of the people are in the epics held up for the praise and emulation of the people, and their triumphs are recited for the people's inspiration.

The drama was and is even more democratic than the epic. This form of literature in England was first devised for the instruction of the mass of the people in Bible history, chiefly that of Christmas and Easter. The priests desiring to instruct and impress their flocks with these important events of Christianity conceived the idea of enacting these stories in the churches before all the congregation. So popular did these little dramas become that the churches were thronged with the multitudes, until the performances were taken to the churchyards, and finally to the streets. When once upon the streets they passed into the hands of the laymen, members of the trade guilds. Cycles of plays were soon developed, and were taken about the streets on wagons, finding audiences at every open place or public square.

With the regular drama and the permanent theater in the age of Elizabeth, the drama entered upon a new era, perhaps less democratic in form, tho always remaining in reality the people's literature. The theaters were thronged with the masses of the people, tho often the persons of the drama were kings and nobles. Thru the theater kings and peoples were brought to understand one another, and a familiarity was developed that has done not a little to level the artificial distinctions that separate men.

The modern drama, moreover, is even more popular than the old, in both form and characters. The drama of today is essentially a drama of the common people, and it is winning its way by appealing directly to the people, and has become immensely popular. The renaissance of the drama today is essentially a people's movement, is sustained by the people, and conducted for the people. The audiences are composed of common people, and the theaters contain few places for aristocratic spectators. The subjects treated belong more than ever to the people, the problems of their economic, social, and political life. And these are no longer treated as of old, from the point of view of kings, and masters, but from that of the people, of democracy. And in this way the drama has become one of the greatest modern forces for democracy, and in almost every way the people's friend.

The novel, too, is still more a form of the people's literature. It depended for its inception upon popular education, and has from the first received all its inspiration from the people. It cannot exist at all except as an appeal to the people, to the general reading public. Nowadays when all the people can read, and prosperity has raised most classes above the verge of poverty, the novel has become the most popular of all the permanent forms of literature. Less than two centuries old, it arose with modern democracy, and has never even from the first been aristocratic. Richardson's Pamela, heroine of the first novel, was a working-maid; and the greatest of all novelists, Dickens, portrays not merely the people, but directly pleads their cause. For the first time in the history of the novel the people had a real spokesman from their own ranks, and Dickens has fully revealed the life of the people of London. Thackeray has not neglected the common people entirely, tho he is chiefly the novelist of the middle and upper class. His splendid and satiric portrayal of the higher classes has tended in its turn to remove class distinctions by showing that among high and low human nature is after all one and the same.

Oratory is likewise a form of democratic literature, and in its

very nature could not be otherwise. The orator finds an audience only with the people, and his words must take a form that the people can understand. From the first great orations of Pericles and Demosthenes, down to Burke and Lincoln, to Bryan and Lloyd George, the orator has always been the voice of the people. The great orators have been great commoners, and have kindled their eloquence at the shrine of liberty. Oratory has no tongue to address the exclusiveness of aristocracy, but utters its voice in the streets, and in the assemblages of the people. It appeals to the common emotions and sentiments of the people, and bursts out with the fervor of an earnest heart only in the cause of the people, and pleads for their liberty. A library of oratory is a library of democracy.

But perhaps the most democratic of all forms of literature is the latest form, the newspaper and the periodical magazine. This more than any other is the people's literature. It is conducted by the people and for the people, and every effort is made to regulate its contents to the forms best liked by the people. Even the yellow journalism that is such a disgrace and blight upon our periodical literature is not undemocratic in aims and methods, but wins its way by accentuating the democratic forms that all such literature assumes. It pretends to be, and in some respects no doubt is, more democratic than the so-called better journals. It appeals to those elements among the people who love excitement, and who have not enough culture or education to save them from an interest in the vulgar. It is probably in closer touch with its public than the better journals, and to this extent is more democratic. Not to know and not to follow the prejudices and passions of its readers is for it to cease to exist.

Practically all the forms of literature, then, are democratic, and each new form is more democratic than the last. Almost every new book, new drama, new novel, new magazine, is another addition to democratic literature. Doubtless the next form of literature, whatever it may be, will be more democratic than any.

5. Thruout all its history, literature has been the spokesman and the friend of democracy. Much of the inspiration for freedom has come directly from literature, and democracy has always found its defenders in poetry and letters. As freedom slowly broadens down from precedent to precedent it will continue to need a voice, and an apologist, and an advocate. Instead, therefore, of declining, there will be an ever-enlarging sphere for literature.

Macaulay thought that with the growth of science, poetry

would decline.⁷ But just as he was writing these words in 1825, Tennyson was preparing his first volume of poetry,—the first of a new poetry that was to excel everything in English since Milton, and find for itself a larger place than any poetry since Elizabeth. That first volume of 1827 was only a prelude to many later volumes, one of which, *In Memoriam*, treated poetically of that very science which Macaulay thought would displace poetry. This great poem showed that after science has spoken, there is still much for poetry to say, for there are many things undreamt of by our science, that only the imagination of poetry can understand.

In the same way the development of democracy itself affords ever larger realms for poetry, for when freedom has slowly broadened down then arises a larger opportunity for vision. This occasion again Tennyson seized in many lesser volumes in which he sounded forth the glories of the British peoples, until he came to the *Idylls of the King*, the greatest English national epic. This great poem of King Arthur and his Knights of the Round Table is really a great epic of the people. It outlines the foundations of a state, making brotherhood the chief corner stone, and exalting fraternity to a political principle. Let no new Macaulay arise, therefore, to say that either the progress of science or the development of freedom shall dispense with the poet. To the poet of real imagination and insight these but furnish new and larger opportunities.

The chief business of a people is self-government, the organization of the various persons into a social and political system. It is not invention, or commerce, or science, that chiefly concerns a free people, but freedom itself, or democracy. There are of course failures to be remedied, mistakes to be rectified, abuses to be corrected. Evils arise in democracies that need wisdom and insight to overcome. When these arise, there will be reactions against democracy, and influences will be at work to lead back to aristocracy. Then comes the opportunity of literature, to keep the ideals of freedom before the people, and in ebb and in flow to hold up the goal of freedom to view. For as Macaulay truly says: "There is only one cure for the evils which newly acquired freedom produces, and that cure is freedom."⁸

Literature, moreover, is a great socializing force. It makes for mutual understanding of the various classes of the people. It reveals the rich to the poor, and the poor to the rich. It declares to

7. Cf. Macaulay's Essay on "Milton."

8. Essay on "Milton."

the simple the wisdom of the wise, and enables the wise to understand the limitations of the simple. It creates a community of feeling, and binds into a more solid social order than perhaps any agency except direct intercourse and discussion. Its social aim is to bring all people into a common sympathy, and to bind them into one social organism.

The development of literature should be, therefore, the aim of democracy. The books and periodicals of the day, open to all, and accessible to all, have an unappreciated unifying effect, and tend to destroy the differences between classes and even between races. The Drama and the Novel of today present a crushing criticism of special privilege, and a fierce indictment of the exclusiveness of riches and fashion. The present free interchange of the literatures of nations is making for a better understanding of national life and ideals, and is aiding the cause of peace and goodwill. A great world literature would bring about in time a community of feeling between nations, that would promote freedom and peace. The hope of democracy, then, is in fostering literature, and its strength is in the compelling power of the ideals set forth in literature.

Democracy must flourish and tyranny vanish where there is a free literature. When Milton wrote his great plea for the freedom of the press, *Areopagitica*, he clearly foresaw that a free literature would be the deadliest foe to oppression and despotism. He foresaw with a prophet's vision that the great power of a free literature would in time overbalance all minor abuses of freedom itself, and would on the whole work for a greater freedom. His treatise is itself the greatest plea for liberty in our literature, and enshrines the ideals of democracy. Every one whose language is English should know this treatise, and other literature of his own tongue in which are enshrined the ideals of freedom that our race has developed, and that have made it great. A free government should encourage every aid to freedom, and there is no greater aid and no greater advocate than literature.

6. When Aristotle long ago said that the chief business of the state was education, he meant of course that it was the first business of the state to train its coming citizens in the principles and art of government. He said: "But of all things . . . that which contributes most to preserve the state is . . . to educate children with reference to the state; for the most useful laws, and most approved by every statesman, will be of no service, if the citizens are not accustomed to and brought up in the principles of the constitution; of a democracy, if that form is by law established; or

an oligarchy, if it be an oligarchy."⁹ This statement is most pertinent for a democracy where the people themselves are the ultimate rulers. If education was the chief business of the state in Athens and Sparta, where democracy was "based on a slave population without civil rights," how much more in modern English-speaking democracies, where there are no longer any slaves and where nearly every man has a voice in public affairs. Only by education can such a free people maintain its freedom, for freedom calls for continual vigilance. And a large element in the education of such free peoples must always be the literature of freedom, which is little other than the entire body of English literature.

In the last analysis, on the ability of a free people to govern themselves depends all their progress in science, and art, and civilization, and religion, those things which make freedom worth having. If a people cannot govern themselves, and should fall into anarchy or tyranny, all their other achievements are in constant danger of collapse or extinction. Either the achievements themselves will perish when a people loses its freedom, or they will become but means of further oppression to the tyrant who gains power.

In this age and on this continent, we have so completely taken freedom, which is democracy, for granted, that we have sometimes forgotten whence it came, and how it may best be conserved. We need to be reminded occasionally that democracy, or freedom, tho old in poets' dreams is as a practical achievement a very recent and new thing in the world. It does not come with the light, and if allowed to set with the sun it may not rise again next morning as the sun in renewed splendor and glory. Democracy is an achievement, and one of those achievements which have come thru cycles of struggle, but which we will not let pass. Its permanence is more to be desired than that of any of the other achievements of man, and its right to continue we will not have brought to question. It is bound up with our civilization, and to let it pass would be to cancel the age-long attempt of the race to attain to its goal.

Other things may come and go, for they are academic, or theoretical, or have to do only with human comfort. But democracy is civilization. It is all the higher life of the race; it is life itself. Science may or may not discover for us the constitution of the earth and the stars, or the nature and laws of electricity; art may or may not construct for us something greater and grander than the sculpture of Greece or the painting of Italy and Holland; engineering

9. Aristotle's *Politics*, V. ix. Eng. trans. by Walford, in Bohn's Library.

may or may not contrive for us ships in the air ; but freedom or civilization did not wait for these things and need not cease if they were all to vanish.

The value of philosophy is not in the material things it has accomplished, for as said long ago it has not baked any bread, tho it has given us God, and freedom, and immortality. Yet even philosophies are systems that come and go. "Our little systems have their day." But democracy is not a philosophy, is not a creed. It has become one of the greatest and hardest facts, which no man now need explain or apologize for. Democracy is here, and it is the most sacred thing known to a free people. Forms of democracy may come, and forms may go ; we may have monarchy in one country, and republicanism in another. But democracy is not one of the forms of freedom ; it is freedom itself. It is not one of the things dear to the heart of the people ; it is the one cause of the people. Democracy is not merely a political theory ; it is a great world movement, the greatest in all the history of the world. It is not one of the tides in human affairs ; it is the steady flow of the cause of humanity itself. The knowledge that some forms of free government have here and there proved unsuccessful does not in any way check the movement. Democracy may have its faults, but it owns the allegiance today of the world's best men. Whatever faults a democracy may have are infinitesimal compared with the great, grinding, oppressing, intolerable faults of aristocracy.

Political theories are of comparatively late appearance in the history of a people. Long before there was any Aristotle to write a *Politics*, or a Committee to draft a Declaration of Independence, great peoples had cherished aspirations of freedom. Freedom has developed seers and dreamers, who have had visions of greater freedom, and who embody these dreams in great literature. The records of democracy, its ideals, struggles, achievements, triumphs, are enshrined in the pages of literature, and are the one great subject of literature. The hopes, aspirations, longings, the faiths, and the assurances of democracy for the future are the materials of the literature of the present. The free nation that would preserve its freedom, the democracy that would preserve its popular rule, would do well to teach its youth the literature of the past, and must encourage and foster and develop the literature of the present.

The Story of the Medieval Cathedrals of the Rhine Valley

I. THE ROMANESQUE STYLE AND ITS ANTECEDENTS

GEORGE PULLEN JACKSON,

Assistant Professor of German, University of North Dakota

WHY are church windows usually pointed at the top? Why are they, in some churches, round at the top? What are the steeples for?" Such were my boyish wonderings when looking at the "meeting-houses" of our village. I could see no sufficient reason why the windows of the church buildings should be different, excepting in size, from the rectangular ones in all the other buildings. Neither could I understand why the belfry roofs should run up in a tall spire. The school house belfry didn't. But that is the way it was, not only in our village but also in the neighboring towns. So typical of places of worship were those structural peculiarities that their sporadic appearance in any other kind of a building seemed quite out of place and grotesque.

As I grew older I came to feel that the forms which had excited my curiosity must be some sort of survivals from earlier times. I heard people speak of "Romanesque" and "Gothic" styles in architecture. And I learned that those round-arched windows were a feature of the "Romanesque" and that the high steeples and pointed-arched windows were somewhat synonymous with "Gothic." But that did not satisfy me. For it gave me nothing of the "reason why" for all this. So the curiosity remained and grew. And when, a few years ago, I had the opportunity of seeing and studying some of the medieval monuments of church architecture, I saw and studied with at least one main end in view,—that of getting a clear conception of the origin and one-time meaning of those now structurally meaningless survivals in the art of church building. And it is with the conviction that there are others who may be interested in the "why" of our church architectural aspects, that I shall attempt to tell briefly the story of the beginnings of the two chief medieval "true styles," the Romanesque and (in a later article) the Gothic.

Romanesque art was not developed among the Romans, any more than was Gothic art among the Goths. But it was based on some of the *forms* which had been typically Roman. What forms? To answer this question we shall have to go back to the days of the early Roman Empire and observe one phase of their art of building.

The empire builders borrowed much in structural art and invented little. From the Greeks they took, among other borrowings,

the massive columns. But instead of borrowing also the flat Greek entablatures to connect these columns one with another and to bear the structure above, they applied here another borrowing,—this time from the Etruscans—namely, the round arch.¹ This arch was used by the Romans so widely that it is looked on as *one*, if not *the most typical feature* of their architecture.

Roman construction went hand in hand with Roman military occupation. Two main directions which it took were *into the East*, where the arch fitted itself to the prevailing concentric forms of structures, forms in which the dome (a round arch turned on its vertical radius as an axis) was a prominent feature, the round arch thus becoming incorporated into the Byzantine style;—and *into Western and Northern Europe* where the favorite form of structure was not concentric and domical as in the East, but rather, rectangular,—one in which, as we shall presently see, the round arch was used profusely. The eastern forms do not interest us here. It is, rather, what the Romans brought into the North and West that I wish to speak of.

That the Romans *did* ply their art of building in the North, and that quite extensively, is amply testified to. The ruins of aqueducts, for instance, at Mainz and Cologne, of the baths at Paris and Trier, and of the Imperial Palace, the Basilica, and the Porta Nigra also at Trier are eloquent testimony to the structural zeal of the Romans in their provinces, *Belgica* and *Germania*. Further proof is to be found in the now excavated foundations of numerous structures of various types all along the Rhine valley, and in the findings now preserved in the museums of antiquity in Trier, Mainz, Bonn, Cologne, &c.²

But as compared with Italy and the East, Roman art in the North had a hard course to pursue. The Romans maintained their existence here simply thru their military prowess. And when, after over three centuries of occupation, this military power weakened, they were gradually (beginning in the second half of the fourth century A. D.) forced to relinquish their control and to recede before the Teutonic tribes which prest in from the north and east.

The Romans went. And with them went their art of building. For stability in political and economic conditions was now a thing

1. Nor are we sure that the round arch was original even with the Etruscans. James Fergusson (*A History of Architecture in all Countries*, New York, Dodd, Mead and Co., Vol. 2, p. 214ff) shows it to be very probable that the Egyptians used the round arch to a limited extent as far back at least as the fourth dynasty.

2. As to the doings of the Romans in Germany, see Friedrich Koepp, *Die Römer in Deutschland*, Leipzig, 1912.

of the past. And even if the barbarous tribes had developed a firm government, it is, nevertheless, very doubtful if there would have been a corresponding development in building; for the Teuton conquerors knew nothing of the art of building with brick and stone.³

The centuries following the end of Roman control in the North were indeed "dark ages" as far as the art of building was concerned.⁴ We have, to be sure, after the centuries of the migration of the Teutonic tribes, a short period, that of Charlemagne, when the country and its institutions seemed destined to become more settled. But Charles' efforts at reviving in the North the glory and power, and at the same time the classic structural art of the older Roman Empire, were nullified by the subsequent partition of his realm and by the inroads of the Normans in the tenth century.

But if the progress of the art of building was largely dependent on economic equilibrium, it was all the more dependent, especially in these later centuries, on the advance of Christianity. For then, architecture meant the art of building churches. This was not the case in times of Roman occupancy. Their structures were secular, as we saw above. Christianity had, to be sure, gained a slight foothold, just before Roman control ceased, in the cities like Trier, Mainz, and Cologne; but few traces remain of any church buildings which they may have had.⁵ In the centuries following, Christianity persisted; but there seems to have been little or no monumental church building till the time of Charlemagne. Charles' own church building, one monument of which is the oldest part of the cathedral at Aix la Chapelle, had no permanent influence, not only because (as we have mentioned above) of the short duration of the political equilibrium which he maintained, but also because the art which he fostered was imported *in toto* from Italy, and hence was not such as appealed to the country in general. From Charles' time on, the Christian church gained strength here in the North. And with the quieter times of the Saxon emperors, the Ottos, (about the middle

3. This seems clear not only from the utter absence of any purely Teutonic remains of this character and from this period, but also from the etymology of the German architectural terms. Words like **Dach**, **Zimmer**, and **Balken**, for instance, are of antique Germanic origin; whereas **Pfeiler**, **Ziegel**, **Mauer**, and other terms which have to do with brick construction, have been borrowed, and at a comparatively recent date, from the Romance languages.

4. It is significant to contrast the condition at this time in the north with that of the same period elsewhere, a period during which in the South and East such truly great and beautiful structures as St. Apollinare at Ravenna (built during the reign of Theodoric), St. Paolo fuori le Mura at Rome (rebuilt on a magnificent scale in the fifth century), and St. Sophia at Constantinople (532-537 A. D., under Justinian)—were being reared.

5. The core of the cathedral at Trier and the polygonal part of St. Gereons at Cologne are of buildings which may have been used for church purposes during Roman times.

of the tenth century), it had become quite powerful. Thus, at this time of church prosperity and political peace, and in this place—North Central Europe, where the imperial authority of the “Holy Roman Empire” was strongest,—it was only natural that the art of building great churches and the passion for such building started to develop along lines which gave to the world eventually the two great medieval styles of architecture, Romanesque and later Gothic.

The early churches were very crude. They had been for centuries simply unpretentious imitations of the Roman basilica, a rectangular structure which had early become the general form of the places of Christian worship, first in the South, then in the North and West. And here a description of that structure is in place.

The Roman basilica was composed of a long, high, flat-ceilinged nave (Lat. *navis*, meaning *boat*, so called from its narrow boat-like form) the lateral walls of which were constructed of heavy masonry resting on a series of round arches, these in turn being supported by rows of pillars. Outside of these nave walls on either side was a narrower and lower nave or side aisle, also with flat ceiling. At one end of the nave was a raised platform or chancel which extended outward from the main structure in the form of a semicircular apse. This was where the praetor sat while trying cases. (For in pre-Christian times the basilicas were used as judgment halls.) At the other end of the nave was a portal. Over portal and windows (in the upper part of the nave walls) were round arches like those which supported the nave walls.

This *basilican ground plan*, then, with its superstructure in which the *round arch* is the prevailing feature, is the North's inheritance from the Romans. Hence the name, Romanesque (French, for the Italian adjective *romanisco*, literally “Romanish”) for the style which developed *in the North* in the tenth, eleventh, and twelfth centuries.

To be sure, this form of structure had, in the run of many centuries, undergone some changes. (See Fig. 1.) In very early Christian times the ancient platform or podium at the end of the nave had deepened still further to form that part known as the choir, which contained the main altar and seats for the clergy. Right and left from the front of the choir the building had been expanded a little, thus forming the transept and giving to the whole plan the shape of a Roman cross, a symbolic form which has been adhered to pretty generally ever since. A third change was the addition of two smaller semicircular apses, one at the left and one at the right of the choir, and opening on the transept.

We must not think, however, on account of the fewness of these changes and of their non-essential character, that this later Christian basilica was really "Roman art" in all its magnificence. For it was not. The people of the North had *changed* that which had come down to them but little. They had *forgotten* more. For instance, they used predominatingly plain rectangular piers under the nave walls where the Romans had used columns. And the elaborate art of decoration—in capitals, bases, mosaics, etc., etc.—had disappeared almost entirely. The tenth century basilica was indeed bleak and bare, as compared with its Roman prototype. So that the forward movement which now started, was not fettered by *many* traditions.

And it is this very matter of tradition or inheritance which has caused the Romanesque developments of medieval times to show in

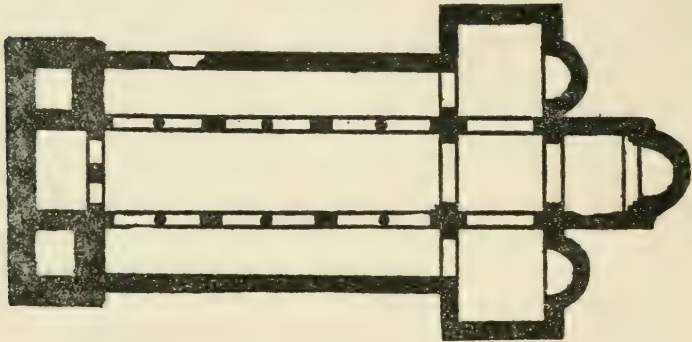
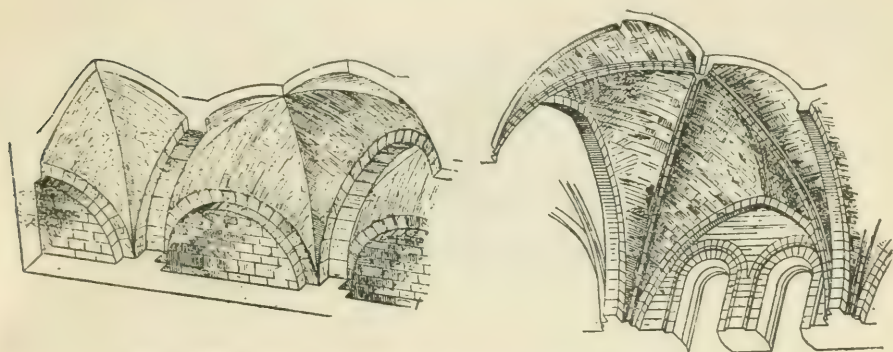


Fig. 1. Plan of Romanesque Flat-ceilinged Basilica.

various parts of Europe various aspects. The Lombards (in North-west Italy), for example, based their Romanesque developments quite plainly on the classic Roman art. That is, having numerous monuments of the antique art at hand, and having at their disposal the same sorts of building material as the ancients used, their contribution had more the character of a reviving of the old, than a developing of the new. Bear in mind, as illustrative of this point, such Romanesque monuments as the cathedral at Pisa. Also the inhabitants of what is now France, made wide use of Roman and Byzantine elements. In Central France Arabian influence also was noticeable. Hence even here the development was hardly homogeneous or independent. But the Germans who from their very location—not contiguous to the homes of ancient art—remained to a great extent free from outside influence, developed the round-arch style in a real and individual way.

It is in Germany, then, that the greatest growth in the Romanesque style took place. It is for that reason that the style has sometimes been termed the "Germanic."⁶ And it is for that same reason that, in this article, I shall speak primarily of the German Romanesque, and shall mention the accomplishments elsewhere only incidentally.

We must not think of the then Christianized Germany as the extensive country it is today. There were indeed, in those times, but two main centers of church power and hence of church building: namely, Saxony, of which Halberstadt, Quedlinburg, Goslar, and Hildesheim were some of the important towns,—and the Central Rhine district, say from Strassburg to Xanten.



a. Cross Vault.

b. Ribbed Cross Vault.

Fig. 2. Romanesque Vaults.

I shall discuss here the churches of the Rhineland only. And this for four reasons. First, the space allotted will not allow a treatment of both Saxony *and* the Rhineland. Second, the Rhine district was the scene of the earlier and more important development in Romanesque. Third, the architectural monuments of the Rhine valley are more numerous and imposing. And fourth, the influence of Rhenish Romanesque on succeeding styles was greater.

In the Rhineland, as elsewhere in the North, the churches which were constructed before the eleventh century were on the cross-shaped, flat-ceilinged basilican plan, a plan which, as we have seen, had remained essentially unchanged since Roman times.

There was one typically German change in this plan, which seems to have been introduced at a comparatively early period, and

6. See, for instance, J. Godefroy, *De Romaansche Stijl en het Overgangstijdperk naar de Gothiek*, Amsterdam, 1912, p. 3.

that was the *double choir*.⁷ That is, in addition to the main choir at the east⁸ end of the nave, there developed, probably as early as Carolingian times another one at the west end. This one, like the main choir, ended in a semicircular apse. The double-choir plan deserves special note. For it this additional west choir which not only prevented in such churches the evolution of the west façade, (a feature of Romanesque in other countries and to some extent also in Germany, which saw its highest perfection in the succeeding style, the Gothic), but which also displaced the west portal to some convenient place along the north or south side—it mattered little where—and thus reduced it to a thing of necessity but not of beauty. Fig 3 shows a typical double-choired plan.

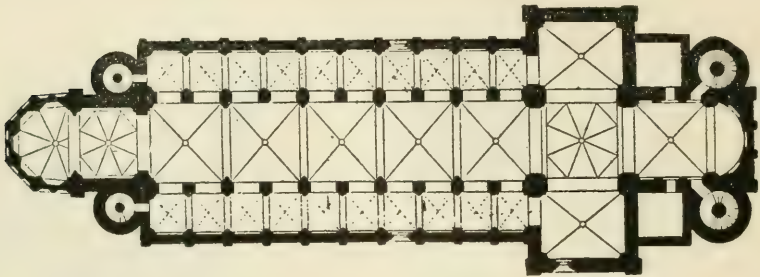


Fig. 3. Ground Plan of Cathedral at Worms.

Not all the Rhenish churches, however, had the two choirs. There were many beautiful edifices, especially in the late Romanesque period, which had the regular two-towered west front with the center portal. Of these, Limburg-on-the-Lahn (Fig. 15) is a good example.

But another and much more important development in the basilican plan came in the eleventh century. And this was the vaulting of the hitherto flat-ceilinged naves, and the changes in the traditional ground plan and superstructure, which this vaulting involved.

We have seen that all the early basilican churches, tho provided with the round arch over doors and windows and between

7. Uncertainty both as to chronology and purpose surrounds the origin of this peculiarity. Records of such structures go back to the end of the eighth century. Cf. Robert Dohme, *Geschichte der deutschen Baukunst*, Berlin, 1887, p. 12. As to its purpose, see Thos. Graham Jackson, *Byzantine and Romanesque Architecture*, Chicago, Univ. of Chi. Press, 1913, Vol. 2, p. 10.

8. All churches of this period were **orientated**. That is, they were constructed with naves running east and west, the transept and the choir with the main altar being at the east end, or at the top of the cross.

piers, had, nevertheless, simply the flat wooden ceilings. This was the case up to the middle of the eleventh century, when the necessity of rendering the structures more nearly fire-proof led the builders in the Rhine district to supplant these ceilings with vaulting of masonry.

The form of this early vaulting was peculiar. For in order to have the vault in structural harmony with the round arches prevailing elsewhere in the building, the form given it was also round (not domical!) or that of the upper halves of two barrels lying in a horizontal position and introduced into each other at right angles. This typically Romanesque feature, the *cross vault* (Kreuzgewölbe) (see Fig. 2 a) had to be constructed over a square or nearly square bay. Otherwise there would have been a disparity in the height of the two component barrel vaults, and the compromise that would thus have been necessary, in order to bring their tops together at the apex of their intersection, would have caused one barrel vault to be *pointed*, or the other to be *flattened*. And either of these expedients would have caused the resulting cross vault to be in structural discord with the *round* arches of the rest of the edifice.

Thru the exigencies of these cross vaults, then, the main nave was divided into a series of approximately square vault bays. The vaults themselves were separated from each other by massive transverse (round) arches which spanned the width of the nave.

And this vaulting brought on other changes. The weight of these vaults of masonry was borne, of course, by the heavy nave walls, but the bulk of the weight rested in those points in the walls where the transverse arches and the diagonal vault ribs⁹ entered it. (See Figs. 2 to 6 and Fig. 10.) To bear this weight successfully, the wall was thickened at these points in the form of rectangular pilasters which continued on down into the piers of the nave wall and thus into the foundation.

But *not every* pier under the nave walls was used for bearing this heavy load from the vault. (Compare Figs. 2b, 4, 5, 6, and 10.) For the piers of the row under each nave wall were much nearer each other than they were to the corresponding piers under the opposite nave wall. Hence it came about that every second pier was used as a vault support, and that the intermediate ones degenerated into less massive secondary piers. (See especially Fig. 10.) Thus we have the distance between *main* piers in the wall equal to

9. These ribs (see Fig. 2b), which were not, by the way, present in the earliest vaulting, followed the lines of intersection of the two component barrels, and were, therefore, directly over the diagonals of the square vault field.

the width of the nave, and distance between main and *secondary* piers equal to *one-half* the width of nave.

But the adjustment caused by vaulting reached even farther than this. For the distance of the nave wall piers from each other dictated also the width of the side aisles. These aisles had, since earliest times, been about a half lower and about a half narrower than the main nave. But now they also had to be vaulted, and indeed with that same cross vault.

It must be borne in mind that this long narrow passageway had on the outer side a heavy wall, broken only by small windows, and

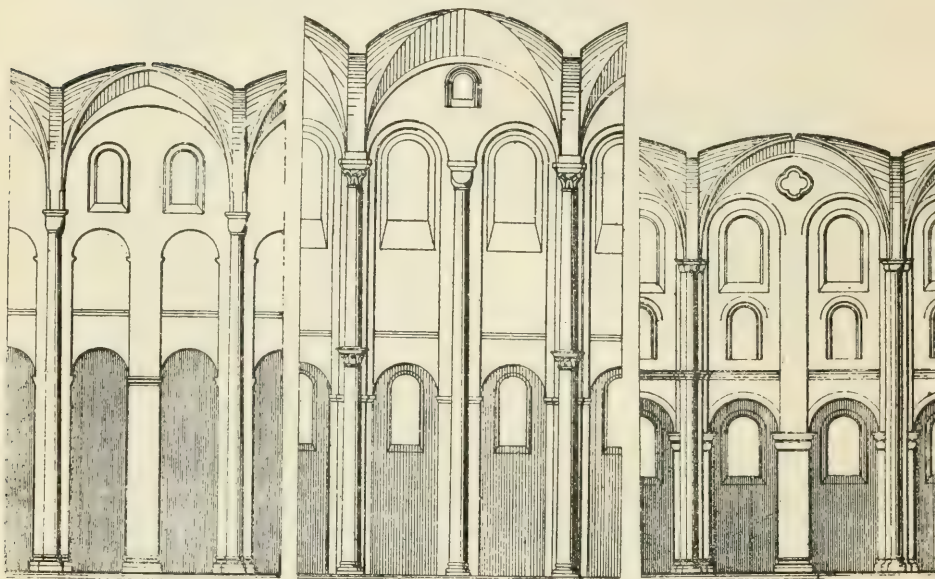


Fig. 1. Mainz.

Fig. 5. Speyer.

Fig. 6. Worms.

Lateral Elevations, Showing Development in Details of Wall Surface.

on the inner side the arcade of the main nave. The piers of this arcade formed convenient supports for the inside corners of the aisle vaults, and were so used. The fact that the piers were, as we remember, alternately main and secondary, made no difference. They were all used, main and secondary. And thus the length of the side of the square cross vault in the aisle was equal to the distance between the axes of a main and secondary pier, or one-half that dimension of the main nave vault. This one exigency as to the length of one side, and hence all sides, of the aisle vault determined not only the number of vaults in the aisle (twice as many as in the main nave) but also the distance of the outer wall (which formed,

as a matter of course, the support of the outer corners of the aisle vaults) from the arcaded wall of the main nave.

The transept at the east end of the nave had usually one cross vault to the north and one to the south of its intersection with the nave. The size of the transept vaults was exactly the same as, and determined by that of the nave vault at the intersection. The cross vault of the choir, on the other hand, could be, and sometimes was in size more or less independent of the other vaults, tho it often was simply a continuation of the nave.

Thus *with the custom of vaulting came the chrystalization of the entire ground plan*, a plan in which the width of nave and transept on the one hand and that of the aisles on the other, had the unvarying ratio of two to one.¹⁰ Any change in the width of the nave brought on a corresponding change in the other parts.

I have gone into the description of this vaulting and its concrete result, the German "fixt Romanesque system" with a good deal of detail. But I have done so with a twofold purpose, that of making clear the first fundamental development in basilica construction since Roman times, and secondly, that of giving an understanding of the vault itself. For it was the esthetic exigences and structural problems of vaulting, and nothing else, which finally led to, and found their solution in the pointed-arch style, the Gothic.

The prototype of this plan of construction which was followed by most builders in the Rhineland during the eleventh and twelfth centuries, is unknown.¹¹ But the cathedral at Mainz (1081) is the oldest extant example of it. And its gradual perfection can be traced clearly by comparing this church with two other similar and slightly younger edifices (see Figs. 4, 5, and 6), the cathedrals at Speyer¹² and Worms.¹³

With Mainz the "system" as far as the ground plan is concerned, was already practically complete. It is in the matter of perfection of the vaulting and in the structure and disposition of details in the nave walls, that these three cathedrals show a gradual advance. Note, for instance, how the blank wall spaces of Mainz (Fig. 4), relieved only by the high blank arches and small clerestory windows, have given way in Speyer (Fig. 5) to larger windows

10. A good example of this is the cathedral at Worms, Fig. 3.

11. It may be that in this the Germans took their hint from the south. For a very similar system of cross vaulting, both in the main and lateral naves, was first used in the reconstruction of St. Ambrogio in Milan, 1046-1071. The famous Pisa cathedral had cross vaulting (but in the side aisles only) as early as 1006. Compare Jackson, work cited above, Vol. 1, p. 262, and Vol. 2, pp. 100, 108, and 267.

12. Vaulted only a few years after Mainz.

13. Built in first part of twelfth century. Dedicated 1181.

topped by the arcade effect which was inorganic and meaningless in Mainz,—how these windows have been lowered to make room for a smaller one above. And see how these details have been perfected still further in Worms (Fig. 6). Compare, moreover, the perfectly plain main pier faced by a single half column in the oldest church (Fig. 4) with the beautiful elaboration of the corresponding part in the other two. And notice finally the advance in the use of horizontal mouldings and capitals.

So we see in these three cathedrals, many of the steps which carried Romanesque art well on toward its highest point of development. Those advances which have to do with the ground plan were directly *caused* by the exigencies of vaulting. Those which have to do with the disposition of the nave wall details are made *possible* and at least *esthetically necessary* by that same vaulting.

But this was not all there was to the Romanesque style in the Rhineland. The builders of the period under discussion used also typical forms of windows, and grouped the latter uniquely. Their exterior decoration also, is worthy of mention.

The Romanesque windows were at all times small and, as we have seen, round at the top. There were at least two reasons for their small size: the first and most important one being that the reduction in the weight of the walls which would have resulted from larger windows, would have rendered the former, as supports for the vaults and the roof, less stable. The second reason seems to me to be, that, in those happy days when bacteria were as yet unknown, the value of sunlight was not appreciated. At the time of greatest perfection of Romanesque art the windows did, however, increase some in size, as we saw in Worms.

As to the shape of the windows and their grouping, I should perhaps simply call attention to them as they appear in the various illustrations of this article. The windows in Figs. 4, 5, and 6 (nave), are older forms. Those in Figs. 12 (end of transept), 9 (choir), 13 (intersection tower), and 15 (west towers), are later.

Also the towers were in the earlier times small and few. They were either round, rectangular, or polygonal. With a growing sense of proportion, the builders saw the grotesqueness of the little towers in conjunction with the high steep roofs, so they increased their size, height, and number. Many of the Rhineland churches have six, and some have seven towers. The picturesque cloister church at Laach (Fig. 9) set the example in this matter, and the three cathedrals we have just compared (Figs. 7, 8, and 14), as well as many others, have a similar tower distribution; namely,



Fig. 7. Cathedral at Mainz (from N. E.).



Fig. 8. Cathedral at Speyer (from N. E.).



Fig. 9. Conventual Church at Laach (from N. E.).



Fig. 10. Speyer. Main Nave (looking east).



Fig. 11. The Church of the Holy Apostles, Cologne (choir view)

three at the west end—one in the center and two smaller flanking towers, and three at the east—two outside the angle where the choir meets the transept, and one in the center over the intersection of nave and transept.

The roofs or steeples of these Romanesque towers were never high. Not until the Gothic period did the really tall spires come into vogue. The high intersection spire of Bonn (Fig. 13) is more recent than the church proper. Their shape was determined by the form of the tower. The round towers had conical roofs, usually (See Fig. 14). Those of the polygonal towers at intersection of nave and transept, were often pyramidal. But the tower roof which is most typical of the Rhineland churches, is the rhomboidal roof over a rectangular tower, as for instance in Laach (Fig. 9, central west tower) and Limburg-on-the-Lahn (Fig. 15).

Aside from the towers, and excepting for the much used round-arch frieze,¹⁴ external decoration was, in the earlier stages of German Romanesque, very meager. But the churches of the eleventh and twelfth centuries show an increasing appreciation of external appearance. The dead wall spaces on the towers, apses, and lateral walls were enlivened by pilasters, blank arcades, entablature effects, and a more generous use of the round-arch frieze. This last named motive in ornamentation which is so nicely in harmony with the whole round-arch style, is, however, not peculiar to the Rhine country. It is, indeed, so widely used in the Romanesque churches of many lands, that it is hard to imagine an edifice of this style of architecture without it.

But one other harmonious feature in outside decoration, which, tho its introduction was comparatively late, found great favor in the Rhineland, was the *dwarf gallery* (*Zwerggalerie*). It consisted of a row of colonnettes with cushion capitals, connected by little round arches. In order to appreciate this motive fully we should observe what might be called the mother church at Schwarzhof near Bonn (Fig. 12). Arnold, Archbishop of Cologne, constructed this between the years 1149 and 1151 as a private chapel on his estate. It was originally a concentric structure in the shape of a Greek cross¹⁵ with one high square tower, at the intersection: and it was built like many castle chapels of that time as a *double chapel*, one above the other; the upper one having been used for

14. This motive may be seen in almost any of the illustrations. See for instance Fig. 9, where the round-arch frieze is strung about just under all the horizontal mouldings—on towers and gables and under the eaves.

15. That is, a cross with four equally long arms. The west extension, added later, destroyed this original symmetry.

regular services and the lower one for a tomb chapel (*Grabeskapelle*). The upper and lower ones were much alike in size and almost entirely separated. Only a small opening in the center of the floor of the upper chapel made it possible for a service in one to be heard in the other. But for the worshipers in the upper chapel to leave, it was necessary for them to go out on to a narrow balcony or corridor, which was built around the structure at this level, and then descend a stairway. This beautiful arcaded balcony, here a necessary part of the double chapel, was the antetype of the dwarf gallery. The builders seized upon this means of beautifying the exterior of their structures, and, as a result, a modified form of it appeared in the decades following 1150 as a belt, sometimes around the apse just under the eaves, sometimes around the towers, at the ends of the transept, and elsewhere, on a great many of the most important Rhenish churches. It was beautifully used, for instance, on the Minster at Bonn (Fig. 13). Other excellent examples are Great St. Martin and the Holy Apostles at Cologne (Fig. 11), and the Cathedral (Fig. 14) at Worms. But we should note that in all these latter churches the dwarf gallery was *solely for ornament*.¹⁶

As to the scant interior decoration there is not much to be said. We saw in Worms and her sister churches fairly typical examples of it; and aside from the characteristic means of relieving blank wall spaces, and of elaborating the vault supports, which we saw in the longitudinal elevations of those churches, (Figs. 4, 5, and 6), there is little to note. Some churches (Schwarzrheindorf for instance) did have their wall surfaces covered with historical, religious or symbolic paintings, but the walls were often of bare masonry.

These, then, are the main distinctive features of the Romanesque style in the Rhineland. And I might say that of all of them, the most striking and most typically German are: the precise coördination of nave and aisles, the cupola or tower over the transept intersection, the picturesque sky-line caused by the many towers, the neglect of the west façade in favor of a west choir, and the lavish use of the round arch frieze and the dwarf gallery.

In the foregoing pages I have outlined the course of the round arch from the earliest times to the middle of the twelfth century, from the ancient Romans to the medieval Germans, from its use in

16. I should say here, perhaps, that similar purely ornamental motives had been used in Italy at an earlier period. It is, however, generally accepted that its adoption and development here in the north was not due to the influence of Italian models, but to Schwarzrheindorf.

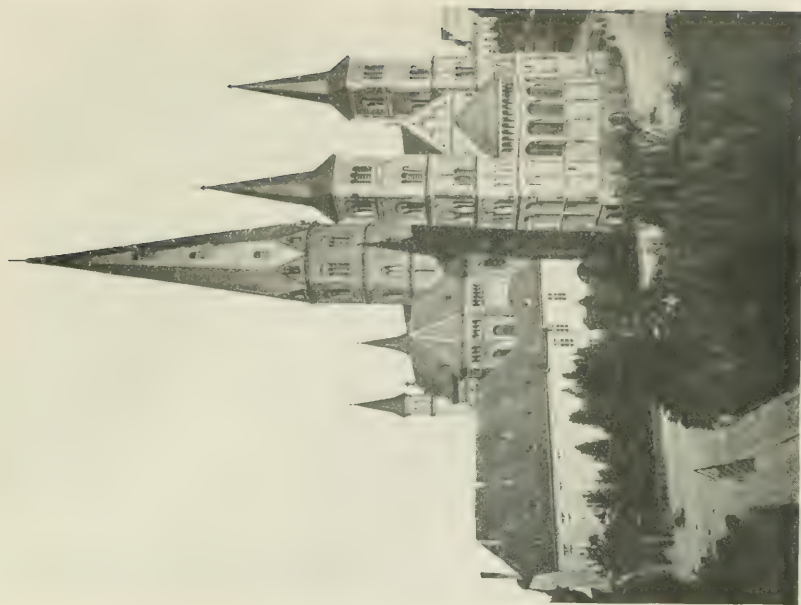


Fig. 13. Bonn (From V. E.).

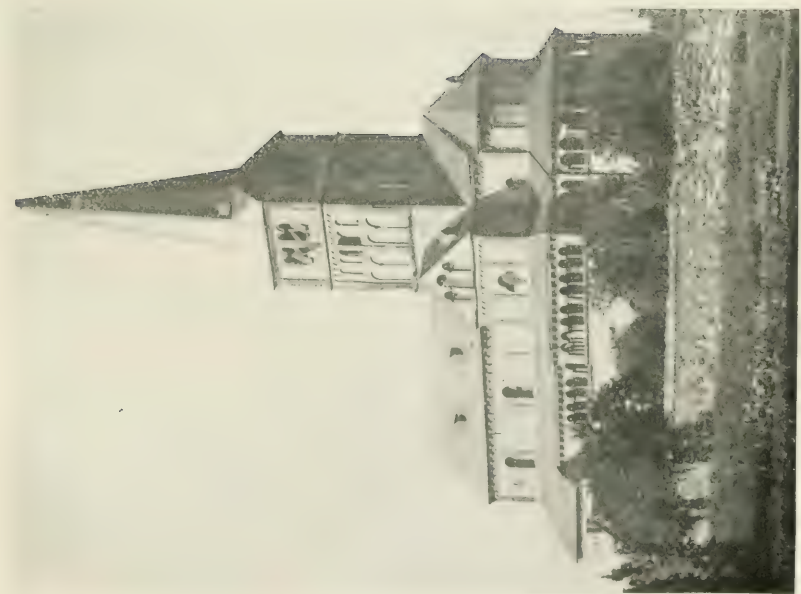


Fig. 12. Schwarzhofendorf (From V. E.).

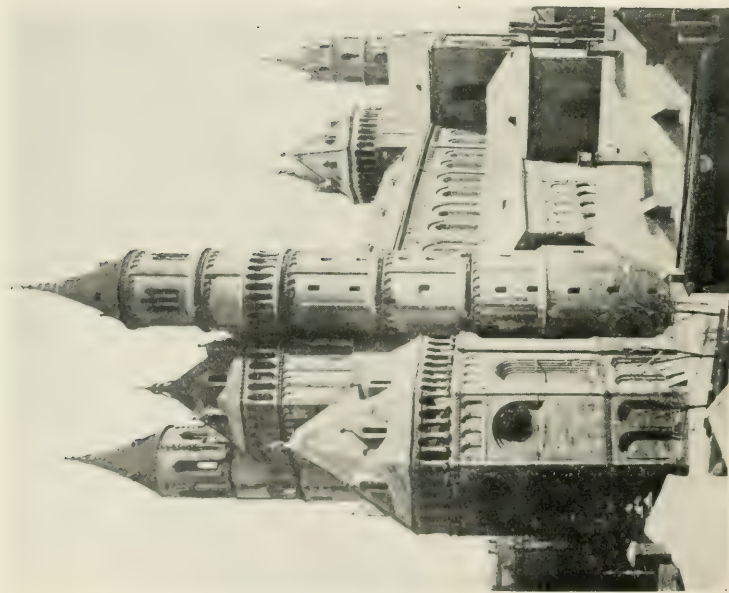


Fig. 14. Cathedral at Worms (from S. W.).

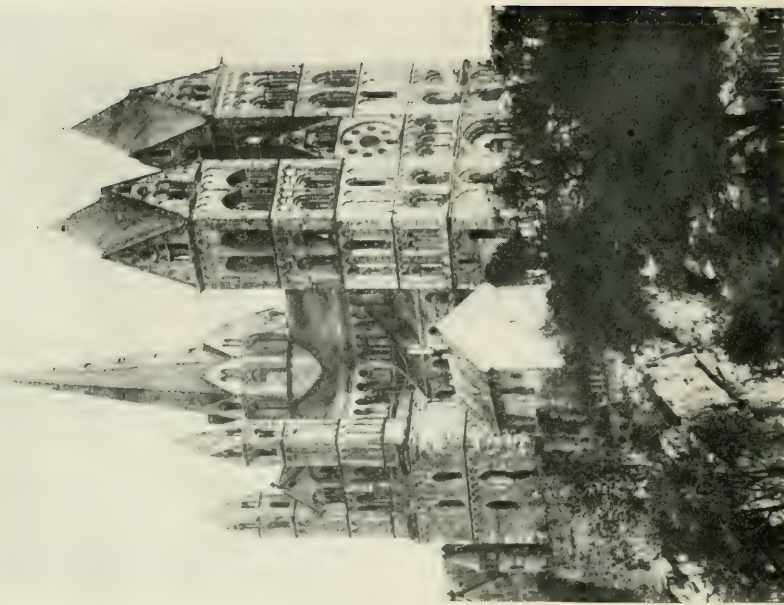


Fig. 15. Cathedral at Limburg-on-the-Lahn (from N. W.).

the oldest secular basilica down to a Christian edifice, built in a style which has in our own time and in our own country, many imitators.

But when we try to trace the spread of German Romanesque directly and organically to our mother country and then likewise to American Romanesque edifices, we are attempting the impossible. For our Romanesque churches did not come to us by that route. Our *round-arched* churches are modern importations of medieval *continental* traditions, not modern survivals of our own medieval English traditions, as are most of our *pointed-arched* churches,—even our little “meeting houses.”

But why is our English church construction predominatingly of the pointed-arch type? A short answer to this question, even in this article which has especially to do with the discussion of the round arch, is justified; for it was one and the same evolution which gave England, and then America, their Gothic traditions and put an end to Romanesque development in the Rhineland.

The problems involved in structurally successful and artistically beautiful vaulting had not been definitely solved with the simple cross vault of the German *fixt* system, by any means. Nor were they destined ever to be solved by the Germans. No, in this solving they had to yield the honors to the Normans.

These people, the vigorous conquerors of northern France adopted, in the eleventh century, much that was German and Rhenish in Romanesque¹⁷ and proceeded at once to the solution of the vaulting problems. And this solution involved a metamorphosis. The pointed-arched style emerged from the round-arched style.

The beginnings of this change fall in the first half of the twelfth century. And the pointed arch was no sooner in use in northern France than it advanced into England. For with so much else of the Norman-French civilization which came across the Channel in the wake of William the Conqueror, came also their art of building. This was the beginning of the Gothic tradition in England.

While the rapid evolution towards English Gothic and French Gothic was going on (roughly, in the century following 1154) the Germans, satisfied with the cross vault and *fixt* system, were proceeding less toward further evolution of plan than to the greater beautification of what had already been evolved. And this was much the situation when, toward the end of the twelfth century, the tidal wave of Gothic, which inundated eventually so large a part of Europe, spread from France into the Rhine valley. Then

17. See Ferguson, work cited above, Vol. 2, p. 112ff.

all development of Romanesque ceased. The hand which had created the Germans' own indigenous art, devoted its energies and skill henceforth, to imitating, and eventually also to perfecting, the magnificent forms from the southwest.

But the sturdy round-arched structures themselves stood, and hundreds of them still do stand, not only as mute witnesses to a most interesting phase in the progress of the art of building, but also as examples which excite the builders of many lands to reproduce in their structures the beauty of that venerable "true style."

The Hebrew Account of the Creation in the Light of Some Others

WALLACE NELSON STEARNS,

Professor of History, and Religious Education, Fargo College

TWO problems before the human mind are the questions of origin and destiny, "Whence" and "whither." Barring explanation by chance, proposed solutions may here be grouped under two classes,—“infinite regress” and casuality. The former implies an endless series, one behind another, compelling the mind in its endless journey to seek a goal it is ever approaching but can never attain. The latter assumes a first cause, which as most fully worked out becomes a self-positing, self-created, creative personality.

There is a kind of knowledge that is approachable thru research and demonstration. Tangible, material elements can be handled, studied, analyzed and their formulae written. There is another realm beyond our ken wherein human eye hath not seen, nor ear heard. Two means of approach have here been relied upon, speculation and revelation. These two modes as they have been manifested in the history of thinking may be compared to two hemispheres. By speculation is meant man's effort by struggling upward to search out mystery and to solve infinitude. By revelation is understood the reaching down of the divine to a point within the comprehension of the finite. Thus the Jew reproached the Greek with having stolen what God revealed to Moses. The Greek reproached the Jew for ascribing to Moses and to revelation the product of the Greek philosophers' thinking. In truth, instead of being comparable to two hemispheres, speculation and revelation are rather to be likened to the two sides of the gold and silver shield. The thinking mind needs stimulus, and only to the inquiring mind is truth revealed.

The dwellers of Mesopotamia met the problem. From the reign of Ashurbanipal (B. C. 668-626),¹ we have tables which give the story according to the Babylonians and Assyrians. The legend can be traced back possibly to the second millenium B. C. The Babylonian account begins with primeval chaos of waters wherein lived the gods Apsu and Tiamat:

1. For the older record see Hilprecht, *Babylonian Expedition*, Philadelphia, 1910, and criticisms by Barton.

“When above the heaven was not named
 And beneath the earth bore no name,
 And the primeval Apsu, who begat them,
 And Mummu-Tiamat, the mother of them all.”²

Thus creation began by the only process known to man, and accordingly we start with a pair. From this pair were descended the beings Lakhmu and Lakhamu, and the gods Anshar and Kishar, the last two representing the heavens and the earth. From the last pair came as emanations the gods Anu and Ea. Anu was the head of the triad Anu, Ellil, and Ea, Ellil being dropt later for Marduk, the God of Babylon. In the war of the gods Apsu and Tiamat stood for chaos and disorder; Anu and Ea for order and Cosmos. The victory of cosmos over chaos was assured by the coming of Marduk, who in the course of events supplants Ellil, thanks to the Babylonian priests.

Philosophically speaking we have here a dualism. There is an original pair but as to which was first we are as much in doubt as in the traditional problem of the egg and the hen.

The wise men by the Nile attempted a solution. They began with a creative act rather than with the idea of continued existence. This theory was variously stated by the different priestly colleges. In each city, naturally, the local god was thought of as the author of creation. In Memphis the god Ptah as a sculptor carved the earth as a statue. In Elephantine the god Knum was regarded as having shaped on his potter's wheel the world egg from Nile mud. In Sais the goddess Neit, it was said, wove the world as a weaver weaves a piece of cloth. A more prevalent theory supposed a great primordial body of water, Nun, having within it all male and female germs of life. Thence came Re the sun. Here, too, were the earth-goddess, Geb, and the heavenly goddess, Nut. It was the god of the air, Show, who separated these last two and bore the goddess Nut away to her place in the regions above. The most that any of these cosmologies achieve is the accounting for the form: it did not occur to the authors to account for the world-stuff of which worlds were framed.

In their beliefs the Hindus were not at one. Three divinities lead—Brahma, Vishnu, and Siva. In some localities these are respectively regarded as the creator, preserver, and destroyer. In some locality or other each of the three is regarded as a creative agent.

2. Rogers' translation.

Still others regard the three as phases of one Supreme Being, which both permeates and is the universe.

The Buddhist thinkers, one of the ramifications of Hindu thought, made the universe comprise an infinite number of worlds, each a number of concentric circles of seas separated by rock girdles and centering about a lofty mountain. Outside the last sea is our sea-girt earth with its four continents. The chronology is one of an endless series of aeons to which there is no beginning. Amid a babel of conflicting voices harmony is well-nigh impossible, but there crops out the principle of infinite regress, and the creative factor seems to be left like a workman without an office.

The earliest thinkers of Greece, physiologists rather than philosophers, found in a material substance (some in one substance, some in another) that whence were derived the elemental forms of nature. This primal somewhat Pythagoras made to be number since that is the medium whereby form and order in space are expressed. Dodging the pitfall of the Ionic school, the Eleatics assumed pure being, i. e., the idea of being, and Heraclitus, recognizing the phenomenon of change, exalted that principle to the rank of first cause. Instead of a single primal substance Empedocles posited four changeless "root-elements," and by their varying combinations explained varied nature. To induce change he was forced to posit a moving power, but altho he described its manner of conduct he did not define its nature nor did he escape the dualism arising from the presence of these two, matter and moving power. Reducing matter to innumerable infinitesimal particles homogeneous in quality but diverse in quantity and arrangement, the Atomists supposed motion to be of necessity. But to note the fact of change is not to explain it, nor by being assumed is necessity constituted the cause of the atoms. To account for design, a point overlooked by Atomism, Anaxagoras introduced a creative *nous*, intelligence, thus distinguishing between primitive matter and cause. The objection made to Anaxagoras is that intelligent mind is brought in as an afterthought to explain where natural causes fail, and that it does not enter into the problem as a root principle. Those who have followed in this line of explanation may be said to believe *with*, not *because of* Anaxagoras.

The Hebrew writers gave time and thought to this problem. The Old Testament is a collection of books whose writers were inspired by the religious motive. These writers drew for their facts and materials on an older national literature of which we now have only titles and quotations. As early as the ninth century B. C. great prophetic writers worked out a plan of the order of creation.

According to this writer the order of priority was:

1.—Earth and heaven -----	Ge ii, 4ff.
2.—Man -----	7.
3.—Vegetation -----	8f.
4.—Animal kind -----	19.
5.—Woman -----	21f.

The document begins: "These are the generations of the heavens and the earth when they were created, in the day Jehovah God made heaven and earth." This writer ascribes the beginnings of things to a personal cause: He is a theistic philosopher.

Four centuries later priestly writers set themselves the task of solving the problem of origins. They also are theists and the narrative of one begins: "In the beginning God created the heavens and the earth." The priestly writer is of a far different type of mind. He is punctilious in detail and elaborate in the working out of his scheme:

1.—Light -----	Ge. i, 1.
2.—Firmament -----	2.
Land and sea	
3.— -----	3.
Vegetation	
4.—Lights -----	4.
5.—Life -----	5.
Land animals	
6.— -----	6.
Man (and woman)	

It is useless to undertake to harmonize these accounts with geology or even with each other. The wonder is not that they are so dissimilar, but rather that there is any similarity. It is noteworthy, too, that at a time when the Greeks, par excellence the philosophers of antiquity, were endeavoring to explain the world by a purely mechanical process, the Hebrew sages had arrived at an explanation now held by a considerable school of Christian thinkers—namely the theistic conception of the Universe. This is the nerve of the Hebrew system. To approach the question in any other way is to lose sight of the forest in a jungle of trees.

A Spiritual Universe

SAMUEL F. HALFYARD,

Professor of Philosophy and Theology, Wesley College

A STUDY of the physical universe with its regularity, laws, and unity discloses the fact that it is system that is spiritually constituted. An investigation of nature with its uniformities, beauty, and purpose-like forms leads to the conviction that it is a thought realm, an order that is informed with intelligence. In its essence, it is not extended matter, but the ongoings of a self-conscious will. Its constitution and order can be explained only as we assume that it is the manifestation of a free Spirit, the work of a Supreme Mind. But this has not always been kept in mind. We have been told by certain writers that the material universe is a system in which spirit has no lot nor part. It has been declared that nature as a self-running machine is well able to give an account of all physical events. Matter and motion, guided by the great law of evolution, are said to be the Alpha and Omega of all things. This, however, is a false philosophy. The objective world is not to be conceived of as a realm in which there is no trace of intelligence nor as a mechanism that is devoid of spirit. A Supreme Intelligence is in the processes and events of the physical world. Nature is alive with the presence of an ever-living Spirit. The material world has as its continuous source divine thought and will.

The presence of mind in the universe is revealed by the fact that nature is symbolic; it appears from the expression of thought everywhere visible in the physical order. Physical nature is a mirror which faithfully reflects the constitution of the human mind. It is not made of dead, inert matter, which makes no response to intellectual activity, but contains principles which are akin to the laws of the soul. This is evident from the fact that the mind knows nature and reproduces it in ideas. That the physical universe can be known and understood is proof, as far as proof is possible, that it is a mental order.

We find an analogy of the symbolic nature of the world in the characters or letters in which a book is written. The letters and words of a book are not thought but express thought. The author puts down his thoughts on the page of the volume in symbols or characters which the reader must in turn interpret if he is to come into possession of the thoughts of the writer. The language itself contains no ideas but is the medium by which ideas are apprehended.

And this is true not only of a language that is known but also of a foreign or unknown language. When the symbols or characters of a people of a past civilization are discovered written either on parchment or cut in the rock it is assumed that they could be deciphered and understood if one possess the key. Now the world of nature is a vast book or volume that may be deciphered and read by the mind of man. The human mind can to no slight extent spell out the words of this volume and ascertain the facts which the letters and characters symbolize. Indeed, science is but a reading of the wondrous book of nature, and a setting down in an orderly manner the facts which have been learned. Every scientific thought conceived and every scientific book written is but a transcript of the page of nature. The biologist with his microscope reads the facts of life as he finds them in nature's volume. The geologist deciphers the facts recorded in the strata of the earth and writes them down in order. The chemist with his test-tube and crucible reads the elements and the combinations arising therefrom. The physicist with his spectroscope and other devices reads the molecules, the atoms, and the electrons. The astronomer with his telescope and photographic plates reads the heavenly bodies and makes known their laws and operations. Nature thus is a text-book which is interpreted by human thought.

Now since things are perceived by us they possess the same principles as the mind itself; the laws of things are identical with the laws of thought. The world is inherently intelligible; it is a great thought system. In other words, the objects of nature and the human mind speak the same language. As both the speaker and hearer are familiar with the language in which they converse, otherwise no interchange of ideas could take place, so the soul and nature speak the same tongue. Were it not so there could be no response between thought and thing, and objects would remain unknown. The world therefore is a thought world; it expresses thought and is rooted in thought. Benjamin Peirce in his "Ideality in the Physical Sciences" speaks of nature as "imbued with intelligible thought," of "the amazing intellectuality inwrought into the unconscious material world," in which there is "no dark corner of hopeless obscurity," of the "dominion of intellectual order everywhere found," and "of the vast intellectual conceptions in nature." And the capacity that nature possesses of being known belongs to it before it is apprehended by the human intellect. The susceptibility to thought which characterizes it is an essential, an inherent quality.

The question arises, How is this correspondence between the

soul and nature possible? How is it that things are cast in the same mold in which the human mind is cast? This adjustment can be explained only on the assumption that the Author of the mind is also the Author of nature. The cause at work in the production of an intelligible world is the same power which has produced man, who is able to know and understand the world in however inadequate a manner. As the human soul and the external world are in perfect accord, they must have one and the same source.

This cause or source we hold to be a rational Being. And material objects are not to be regarded as independent things but must be viewed as the expression of the thought of a Supreme Mind. As the written words express the ideas of the writer, and the spoken words the ideas of the speaker, so material things express the ideas of Deity. Man grasps the world and translates it into thought because in its inner essence it is the thought and will of its Creator.

The spiritual nature of the world appears also from the fact that it is ruled by invariable law. The world is not a chaotic flux but a system in which order prevails. And the law by which the universe is governed may be expressed in strict mathematical relations. The law of gravitation which controls all objects, small and great, near and far, is described by a definite mathematical formula. All the elements have their numerical equivalents. A chemical compound is formed in certain numerical proportions. And these proportions cannot be altered. Hydrochloric acid for example is formed by the union of one part of hydrogen with thirty-five and a half parts, by weight, of chlorine. Thirty-five will not do. It must be thirty-five and a half. These figures are immutable, inexorable. Astronomy like chemistry rests on the strictest geometry. The motions of the heavenly bodies can be expressed in terms of mathematics. In the seventeenth century Kepler discovered that the heavens contained magnificent diagrams of the ellipse. The circle, parabola, and hyperbola may also be applied to the heavens for the satellites of Jupiter revolve in circles, while the comets describe parabolic and hyperbolic orbits. Eclipses and transits and perihelions may be predicted years in advance and with an exactness that puzzles those who are unacquainted with the laws of mathematics. The mariner with his instruments and the data furnished by the astronomer can tell at any hour of the day the place of his ship on the bosom of the deep. The same is true of the vegetable kingdom. Organic life also develops under the same mechanical rules. The physical and chemical activities that produced the purple of the violet in Eden produce the same color today. The laws that unfolded the petals of the first

rose are the same under which it still grows and blooms. The processes by which the valley and plain were first robed in green are identical with those which still cause the vale and upland to rejoice. Moreover leaves and flowers have a determined order, a fixed point of location. We are told that not a leaf varies from its proper position any more than a planet from its orbit.

But whence comes the law? Whence arises the order? Man discovers what already exists. The law which the astronomer finds in the heavens co-existed with the dawn of creation. The relations among the stars are not dependent on the thought of man; man discovers and formulates but does not create them. The same is true of the relations among the chemical elements and the laws of the organic world. They do not depend for their existence on the human mind. Whence then comes the law? How is it that the planets and stars are so related? How does it happen that the chemical elements unite in fixed proportion? Laws are not objective realities. They are not agents. They are not causes. They are but the formal statement of the way or order in which natural objects act and interact. Hence they are the reflection of thought. They are the rules according to which intelligence works. The mathematical relations which exist between things can be explained only on the ground that they are expressions of infinite reason. The transference of mathematical principles to the world of nature is possible on the sole assumption that the universe is grounded in intelligence. Plato says that God geometrizes. He has created the world as the expression of a divine plan and in accordance with strict mathematical rules. And scientific investigation confirms the view that the universe is rooted in the activity of a self-conscious spirit. Indeed, the more profoundly we study the world and the laws on which it is built, the firmer becomes the conviction that it is the product of divine thought and will. The order and harmony pervading every part of nature bespeak the presence of infinite power and control.

It is in accord with this idea that one writer says, "When the sun rises at a certain moment in the morning and sets at night, and when this great earth of ours goes speeding away and then turns on the twenty-first of June—these laws mean the organized expression and mind and heart of the infinite God. When, therefore, we speak of the sciences we mean a copy of the laws of God. Geology copies God's handwriting on the pages of His rocks; astronomy copies God's handwriting and voice on the pages of His stars; physiology copies God's speech uttered through the human body;

psychology—it is a copy of the laws of the human intellect; art—it is a copy of God's beautiful thoughts; tools—they are God's useful thoughts organized into terms of steel or iron or wood, and they give us these marvelous textures. These laws of nature through land and sea and sky, through all the fruits, through all that lends us beauty and truth—they are the voices of God speaking to us."

It must not be overlooked that the reign of law thruout the universe indicates that the world is a coherent system in which every part is united with and adjusted to every other part. All the bodies which compose physical nature are inseparably bound together in an all-inclusive system. Not even a molecule or atom exists which acts independently of or apart from the sum total of things. The movements of every body, organic and inorganic, are embraced in and are a part of the ongoings of the one order. Every organized being is composed of cells, each of which obeys the laws by which the organism is governed. Individuals are so related as to form species, and species as to form genera. The planets and stars, as they pursue their appointed courses, and keep tuneful harmony, constitute a system. And the many celestial systems are doubtless embraced in the unity of the one system of the universe. This is both the teaching of science and its necessary presupposition. All science proceeds on the assumption that the world is a single system, a connected order of facts and relations. It assumes that the universe thruout all its parts is a rational order, whose laws and principles may be scientifically studied by intelligent beings. This view is growing more and more into favor with a larger knowledge of the phenomena of nature and with every advance of science.

The question arises as to how such a system of related parts is possible. How shall the world as a single system of fixt and unalterable relations be explained? It cannot be explained by anything within the related parts themselves. No summation of dependent things can involve an independent principle which is the ground or cause of the subordinate parts. A deeper and fundamental reality must be assumed, in whose unity the interaction of the many parts is mediated. This problem of the Many and the One can be solved only as we assume that it is made possible in and thru a unifying principle. Indeed, the union of the many into the one implies such a principle of unity. And such a principle must necessarily be not blind and unconscious power, as some have held, but a living, self-conscious spirit. Intelligence is the sole spirit which is adequate to the performance of this task. To unite the many into the one, and at the same time keep them distinct, so as to prevent a fusing of

parts, must be the work of an omniscient and all-powerful mind. The regularity, law, and unity in the world implies a central controlling reason. Simon Newcomb says: "Should we see in visible masses of matter the same kind of motions which we know must take place among the molecules of matter as they arrange themselves into complex attitudes necessary to form the leaf of a plant, we should at once conclude they were under the direction of a living mind, who was superintending the execution of these arrangements."

That the universe is a spiritual system is seen moreover in the fact that it is constructed on an artistic plan. That it is the work of a Supreme Intelligence appears from the beauty in physical nature. Now it is evident to all that the world is full of loveliness. From its center to its outermost rim it is crammed with beauty. The power that is at work in the universe is constantly clothing nature with a garment of marvelous loveliness. There is no nook or corner of the earth neither in the dark unfathomed caves of the ocean nor in the tangled forest that does not have its profusion of beautiful forms. The world is so beautiful that the painter's brush is in despair. Everywhere in the physical order are drawn pictures with colors infinitely richer than ever conceived of by a Rubens or a Raphael. For unnumbered centuries as the seasons have come and gone a wondrous beauty has flamed all over the face of nature, then faded, then flamed again. This beauty is seen in the wild flowers that carpet the fields, in the sweet buds and blossoms of spring, in the autumnal forest with its green and gold, in the glory of the rising and the setting sun. It is seen in the blue of the sky, in the breast of the robin, in the cup of the violet, in the wing of the insect, in the snow-capped mountain peak. An old Scotchman tells us that it was his custom every morning for twenty years to go outside his cottage door and uncover his head to the beauty of the world.

James H. Snowdon in describing the beauty of the world says that "Nature is a vast canvas set in a stupendous frame. The sky by night is a glittering dome, gleaming with brilliant points as though sown with diamonds, or filled with a shower of white sparks. The seasons are a procession of pictures and a pageantry of color. Spring comes smiling in green; summer swathes itself in heavy folds of beauty; autumn is rich in color, and even when shorn of its summer glory, it decks itself in bright shreds and patches and becomes a beggar in scarlet rags; and winter robes itself in spotless white. Flowers are shaped and painted and perfumed into all lovely forms and delightful odors, birds are brilliantly arrayed, and insects, richly colored and enameled and bejeweled, are as winged flowers.

Inorganic nature is adorned with beauty as well as living forms. Every landscape frames a picture, the mountains are stamped with sublimity, and the clouds are a gorgeous panorama. Crystals are frozen geometry, a snowflake is a marvelous bit of architecture, and even a common grain of sand under the microscope is a blazing jewel."

Now the beauty of nature can be explained only as we assume that the world has been fashioned by a Being who is the possessor of artistic ideals. The glory of the physical universe reveals as its Creator One who is the source and lover of beauty. The splendor of material things is not self-made but is sent hither by the will of a Supreme Mind. It is due to the presence of the Divine. Beauty witnesses to the spiritual nature of the world. Nature saturated with beauty teaches us that the ultimate cause of the universe is endowed with a sense of the beautiful. John Ruskin held that "the foundation of beauty in the world is the presence of God in it." The same truth is finely expressed by A. H. Strong in the following words: "As finite truth and goodness are comprehensible only in the light of some absolute principle which furnishes for them an ideal standard, so finite beauty is inexplicable except as there exists a perfect standard with which it may be compared. The beautiful is more than the agreeable or the useful. Proportion, order, harmony, unity in diversity—all these are characteristics of beauty. But they all imply an intellectual and spiritual Being, from whom they proceed and by whom they can be measured. Both physical and moral beauty in finite things and beings are symbols and manifestations of Him who is the Author and Lover of beauty, and who is Himself the Infinite and Absolute Beauty." Thus the loveliness of physical things has its origin in the uncreated loveliness. The beauty of the world must be traced to One in whose heart is the passion for the beautiful. Thruout the whole range of matter there are echoes of spiritual beauty. The graceful forms and sensuous beauty of nature are but the veil which hides from view the face of the Infinite. The springtime with its birds of song, the summer with its fragrant flowers, the autumn with its faded leaves, and the winter with its falling snows are manifestations of the Infinite Spirit. Nature, in her manifold colors and moods is His mantle which He has woven in the loom of time. In the ray of sunlight, the purple of the violet, the blush of the rose, the beauty of the sunset, the tall pine forest, and the springing grass is His glory revealed. Linnaeus once said of the unfolding of a blossom, "I saw God in His glory passing near me, and I bowed my head in worship."

We thus come down to the view that the universe is spiritually constituted and that the cause at work in its production is a Personal Agent who is not external to His work, but within it, co-ordinating part to part, and thru the whole realizing His will. God is everywhere revealed in the world. Nature is an inscription written by His finger. It is a volume in which may be read ideas of the Infinite. Physical phenomena are the divine thought express in terms of matter. The winds, the waves, the earthquake, the lightnings, gravitation, magnetism, all these are exhibitions of the divine power. It is God who thunders; it is He who lights up the stars at night; it is He who recarpets and embroiders the earth in springtime. And Nature is full of the activity of the Infinite. He is in every ray of sunshine, every sporting wave, and every running stream. He is in the swelling bud, the opening leaf, the unfolding flower, the luscious fruit. Every blade of grass and mountain and dell is crammed with His presence. His way is in the sea, and His path in the great waters. He is in the blowing of the winds and the light of setting suns. Nature does its work with unceasing regularity, because it is the method of divine activity. The immutable laws of the universe are the steadfast habits of its Author, while the order everywhere visible thruout the world is His constant mode of expression.

Founders' Day*

Fastidious what dead her Minster floor
Shall cover, England's ancient Abbey stands,
A sweet memorial from days of yore,
Sought out by feet of pilgrims from all lands.
Whoever heeds her vesper chimes and steals
Into the hallowed precinct, though his heart
An alien be to prayer
And praise, a subtle sense of worship feels,
And lingers dreamy-eyed where sculptor's art
Records what master minds have anchored there.

Must that sweet spirit be to us unknown,
Or must we seek it wandering oversea,
In storied haunts with ivy overgrown,
Or where the ages past have strewn debris?
Is there no such ambrosia for the soul,
Unless within dim choir and transept aisle
A thousand years and more
Echo the anthems that the living roll?
No spell of dream, unless in cloistered pile
We meditate the fames whose reign is o'er?

There once befell a strife amongst the Twelve
O'er who was first in heavenly rank and power;
And He who deepest in the soul could delve,
Who glimpsed in mustard seed and wilding flower
A parable of truth else undivined,
Into their midst called forth a little child,
And spake: "Lo, chiefest, he,
In whom its lowliness of heart and mind!"—
By outward semblances of things beguiled,
Our eyes are holden that we may not see.

Our yesterdays may be too brief a space
For ripening such charms as heart would feel;
For giving sweet romance its subtlest grace
And potency of exquisite appeal.
Yet who survey these human acres, ploughed

*Given at the annual Founders' Day celebration, February 22, 1909, commemorating the twenty-fifth anniversary of the founding of the University of North Dakota.

And harrowed with ancestral pain, nor draw
 Some lesson from the sight,—
 Some new reminder whereby to be vowed
 And dedicated to the higher Law,
 Do not commemorate the past aright.

We meet to-day that from what was, what is
 And will be take increase of nobleness;
 But for such festal moments we should miss
 Something of prescience: in the strain and stress,
 Mid all the seeming nothings of our days,
 Who would not sink unnerved and all but spent,
 Must tutor himself brave,
 Pondering by what strange and devious ways
 The yester years pressed on and made ascent,
 With deeds not all convergent to the grave.

When still the New-World continent, rich-soiled
 And teeming, lay like jungle in a trance;
 When arrow-fanged, its every thicket coiled
 And hissed with interdict against advance
 Of the explorer or stern pioneer,
 Did they who thrid the trail or built the hut
 Surmise the future State?
 In the more lofty structures that we rear,
 Wherever toiling onward, are we not
 As ignorant of the purposes of fate?

Nor less the heroic discipline whereby
 Our wills are being schooled: the strain and strife
 Of adolescent cities, whence the cry
 Continuous of congested human life;
 The deadly duel 'twixt the poor and rich;
 The raucous chorus of an age of steam;
 The industrial thirst for gold,—
 Are these not savagery indeed, to which
 Primeval terrors almost trivial seem,
 In sylvan wildernesses, trod of old?

Nor boots it that our minds we saturate
And flood with lore, undreamed-of anciently,
If so Truth perish that our sires made great.
To us, the lords of matter, if it be
An outworn or too nebulous a creed
That things have worth as handmaids of the soul,
Or else are wholly vain,
What profiteth our lordship us indeed?
What faintest insight ours to hint the Goal,
Whereto, sore tried, the spirit must attain?

It gropes to-day as it groped yesterday,
Its darkling Whence no better understood,
Its darkling Whither without beacon ray
To guide toward highest end or ultimate good.
In this atomic grist that we have ground,
These husks of theory and unwinnowed fact,
Is there potential Bread?
Perchance!—Yet where we boast that truth is found,
How much the sober morrow must retract!
And wherewith now is spirit to be fed?

—Like pleadings of soft intermittent bells
In Sabbath stillness to come forth and be
Of them that worship unto one who dwells
Withdrawn into the self, where wistfully
He broods in silence—such mild summonings
Urge back the song into a gladder strain
Of hope and festive cheer;
To-day of all days, whosoever sings,
Let him sing thankfulness that once again
To honor Alma Mater we are here.

If darkness fall, the more resplendent She!
 If Mammon rise, her lips must teach the more
 That not in things possessed is majesty;
 If knowledge fail us, let her going before
 Track out new paths of truth, our feet may tread;
 If doubt confuse, the accents of her voice
 Still shepherd us aright;
 If strenuous for high ends, though ill bested,
 Let there be recompense in knowing our choice
 Was such as to be pleasing in her sight.

Her elder children born, the vanguard throng
 Of thronging generations yet to come;
 We sing a crescent glory; they in song
 Will hail it at the full when we are dumb.
 From loftier heights of blue, less cloud-obscured,
 The richer splendor of that beauty's dower
 Their gladder eyes will greet;
 And yet the Light that through these years endured,
 We feel in this commemorative hour,
 It hath been as a lamp unto our feet.

Ensanguined lest young Freedom's light should wane,
 Old battle-fields are sacred; every shrine
 That treasures their memorials of pain
 Is therefore doubly hallowed and divine.
 If there our shoes 'tis fitting we unbind,
 Be it no less where man his bread has cast
 On waters of no fame;
 Or wheresoever mind enkindling mind
 Into the Future from its flickering Past
 Sped forth a new relay of missive flame.

As phantom frost that silvers bush and tree,
When sifted by the wind to nether snow,
Becomes a dance of crystal-slippered glee,
The evanescent ages come and go.
Their Time-glass,—ceaseless, and yet ne'er reversed,
Nor emptied here to be replenished there,
No reckoning doth keep
Of years, or any human last or first;
Our wake seems that of birds that wing the air;
And the one thing abiding—is it Sleep?

Unoverawed by fluctuating Time,
The dauntless Spirit somehow triumphs on,
Building new pinnacles and more sublime,
For crumbled shrines from centuries agone.
For every generation blotted out,
With what wild fervor of impetuous breath
Another doth appear!
The Import of their coming, who can doubt!
Nor but to cater revelry for Death,
Each cluster of nine moons is ripened here.

Such paeans from ambiguous oracles
May still be wrung as in the olden days:
Be ours the old-time spirit that compels
Destiny; and be this alone our praise
And guerdon, to have faltered not nor swerved
In crises of the tragic racial strife
And struggle to ascend;
Not without Purpose will the years have served,
If the Eumenides of human life
Chant choral benediction o'er its end.

GOTTFRIED E. HULT

Department of Greek,
University of North Dakota

Making "A Pageant of the North-West"*

FREDERICK HENRY KOCH,

Assistant Professor (in charge) of Dramatic Literature, University of North Dakota

THERE seems to be a revival of pageantry among us. Five hundred years ago—fully two centuries before William Shakespeare was born—the merchants and tradesmen of England performed, on "pageant" stages in their public squares, long cycles of Miracle and Mystery plays. And on the Continent too, in varying forms, these dramatic representations of Bible and Saint stories were widely popular. Such survivals as the Passion Plays of Ober-Ammergau in Bavaria, of Selsach in Switzerland, and of other villages so remote as to be hardly known to the outside world, suggest how intimately the religious pageant was cherished by the masses. It was indeed the open theater of the people.

The first years of the present century mark something of a return of this popular play-form. The people have reclaimed the pageant. Beginning in Sherborn, England, in 1905, it was not long in finding its way to New England, nor indeed in covering the entire distance across the new continent from Yankee Maine to cosmopolitan California. An organization has been formed to conserve the idea, and the movement seems to be growing by leaps and bounds. A bulletin issued by the American Pageant Association announces for the year 1913 a list of forty-six pageants, festivals, and masks, presented in fifteen different states. This month the city of St. Louis, Missouri, will present on the forested stage of its hillside theater "a gigantic pageant," re-enacting the romance of its history and forecasting its future in poetic allegory. One hundred and twenty-five thousand dollars has been given by popular subscription to finance the enterprise, experts have been enlisted in all departments of the work, seven thousand five hundred St. Louisans will gather to participate in the most pretentious drama ever staged by a com-

On the Bulletin Board of the April number of the QUARTERLY JOURNAL it was said that in the July number Professor Koch would discuss the Pageant Movement. This brief article is not the one contemplated in that announcement. It merely serves as an introduction to that, and calculated to connect our own "Pageant of the North-West" with the larger movement. Professor Koch has had too much to do in the actual work of making a pageant to stop for its interpretation. But that article, attempting to interpret the larger movement, and especially enquiring into its educational value, may be looked for in a subsequent number of the QUARTERLY JOURNAL. Professor Koch will be all the better equipt for its writing by his connection with the local movement.

munity. Such is the spirit and the scope of the new pageant movement—a form of vast proportions, a wider conception of the out-of-doors drama than any yet evolved. What is its meaning? Is it only a passing show, or is it pointing the way toward a greater democracy in the drama?

The new pageantry is first and last of *the people*. The community furnishes at once its theme, its actors, its audience. For this reason it would seem particularly adapted to give to the people an adequate outlet for their constant desire to express in dramatic form their native, tho too often arrested, sense of beauty. The dramatic seems to be the dominant art-impulse in the masses, and in this its latest phase, it is made to include all the other fine arts—poetry, music, dancing, coloring, modeling, building—in a great comprehensive, communal drama. It becomes indeed a patriotic embodiment of the life story of the people, re-creating their romantic yesterdays, interpreting their own stirring day, imaging forth their dreams of yet fairer to-morrows. If this new art can stir the imagination of the people to do such things for themselves, may not co-operative liberty flower ere long in a fairer state than any we have yet known, into something of lasting beauty?

In making "A Pageant of the North-West," the University of North Dakota is endeavoring to play its part in this new movement toward the emancipation of the imagination of the people—toward a higher patriotism. The task seemed at first impossible, but the untiring efforts of the many co-partners in the work has made it a reality; it marks the beginning, it is hoped, of a still greater pageant of the North-West yet to be staged.

The story of this pageant represents four successive stages in the development of the great North-West. The first three parts relate the remarkable adventures and achievements of three heroic Frenchmen—Radisson, LaSalle, and Verendrye—whose vision of a western empire impelled them to win for the flag of France all the wide wilderness of this then unknown region. The first part deals with the resourceful Radisson who prepared the way for the historic Hudson's Bay Company, in 1670; the second part, with the gallant LaSalle who sought to unite the warring tribes of the upper Mississippi Valley into a confederacy able to repel invasion and protect the fur traders who were to follow him; and the third, with the far-sighted Verendrye, the first white man to follow the northern course of the Missouri river in the prairie country of what is now North Dakota. The fourth part, presenting the famous expedition of two intrepid Americans, Captains Lewis and Clark, marks the final con-

quest for the United States of all the country westward to the Great Sea. At their first winter camp, Fort Mandan, on the Missouri river, near the present site of Stanton, North Dakota, they found Sakakawea, the Bird-Woman, whose kindly leadership guided them safely over the dangerous mountain ranges to the sheltered valleys by the Western Sea. It seemed fitting that the present pageant should conclude with the figure of Sakakawea, an embodiment of the undaunted will, and the friendliness of the homes in our great North-West.

In all essentials the historic facts have been strictly followed, in many cases the speeches having been retained in their original form. Native Indian music, recorded by Mr. Harold A. Loring, collector of songs and folklore of the American Indians for the United States government, has been introduced, and a group of full-blooded Chipewas, with their costumes, trappings, and instruments, has been brought from the Turtle Mountain reservation to take speaking parts, and so lend reality to the scenes.

The text of "A Pageant of the North-West" was written by eighteen undergraduate students, members of the Sock and Buskin Society of the University, in collaboration, under the direction of the Department of Dramatic Literature and with the co-operation of the Department of History. It was composed in four parts, each part being written by a group of four. One student wrote the prologue, the epilogue and the interludes, while another wrote the music for the lyrics. The interludes were written in the spirit and form of the old ballad and to indicate the mood of the scenes they introduce; they were designed to be chanted by a chorus dancing an harmonious accompaniment. In its communal method of authorship "A Pageant of the North-West" is perhaps without a precedent in modern pageant-making. The work, tho long and hard,—for the writers were more than nine months in collecting the historical data and converting it into pageant form—has been altogether refreshing, recalling the very beginnings of literature in "those happy days," as Herder calls them, when literature "lived in the ears of the people, on the lips, and in the harps of living bards."

Thus the making and staging of "A Pageant of the North-West" has demonstrated in a unique way some of the permanent values which the present pageant movement may contribute.

A peerless Shakespeare came only after the continuing efforts of many generations of folk-players, after slow years of experimentation in which every English tradesman had a part. England as a nation of amateur actors prepared the way for him, made him pos-

sible. Perhaps now in their enthusiastic revival of this favorite form the people are preparing for another,—this time for the Great One foretold by Ibsen in one of his last plays: "Some one is coming after me who will do it better. . . . Only wait—you may be sure he will come and let us hear of him." Perhaps the people's pageant of today is making ready for the coming of another Shakespeare—this time, one to interpret the American Age.

The Ministry of Music*

WILLIAM WELLINGTON NORTON,

*Assistant Professor (in charge) of Music, University of North
Dakota*

THE real nature of music being so little understood, it is well for us to consider the question "What is Music?" before taking up the discussion of its ministry.

What is music? To consider its origin may assist us in gaining an idea of its nature. Herbert Spencer claims that music has arisen from a reflex of the vocal cords under stress of emotion and that singing was the original music. It is evident that music is the expression of our emotions. It expresses the emotion of the German, it expresses the emotion of the French, it is the language of emotion for the Italian, in fact it is the universal language, it is the one thing in common for all mankind, in the uncivilized as in the civilized world. It is true that music has in it the element which characterizes it as belonging to a certain nation, and yet the music of all the nations and of all people is so similar that it is our one common language. Its national differences are analogous to the dialects of English speaking peoples. Not only is it our common language, but music enters into every phase of our life since emotion is a part of every phase. How much is the spirit of an athletic contest enhanced by music either in song or as furnished by a band! What would a church service be without music! Every one feels its influence. What would an army be without its band! Even the man or woman who *seems* to have no interest in music, who even abhors it, could not truly live without it.

Human activity has been divided into three great classifications involving the relations of man with the rest of the universe. These are intellectual, emotional and physical. "Whenever a man knows a thing, the intellectual relation is established. When he loves or desires a thing, the emotional relation is set up. When he touches or sees a thing, the physical relation is evident." Man is ever seeking an expression of those experiences which are most *permanent and lasting*. It appears that the one relation of the most eternal character is that of emotion. Professor Gottfried E. Hult has told us in

*The writer desires to make grateful acknowledgment for many ideas and suggestions received from lectures and articles by Albert A. Stanley, University of Michigan; P. C. Lutkin, Northwestern University; H. D. Sleeper, Smith College; W. R. Spaulding, Harvard University; L. E. McWhood, Drew Theological Seminary; C. G. Hamilton, Wellesley College, and many others whose services along these lines are well known.

his lecture on "Literary Permanency" that this permanency in literature is governed by its emotional appeal. I quote from that lecture:

"It is a fact, strange enough to furnish much food for mysticism, that human emotion, which superficially considered seems so variable, so chameleon-like,—a thing with such myriad facets to crisscross the rays of light flashed upon it, should yet in its basic substructure be so adamant and elemental that, just as to divinity, a thousand years are to it as yesterday when it is passed, and as a watch in the night. Otherwise the Muse would be a Niobe whose children must all have perished. If our emotions had changed fundamentally, we should not be able to read Sophocles or Dante any more than an Egyptian hieroglyph or Coptic. One touch of nature would not then make all time, as well as the whole world, kin. The Venus of Milo or Rafael's Sistine Madonna or Hamlet would not be 'up to date.' We would have to revise religion, and not merely the creeds. The pendulum of emotion oscillates somewhat, to be sure, or there would not be an Augustan Age succeeding an Elizabethan, or a Romantic an Augustan; but the arc through which it swings is definite and limited, and every segment of that arc is determined by radii from the abiding common centre, the human heart. Nor do changing fashions argue the contrary of this, or even changing taste. The former seems to be but a foam churned on the surface of things by some chance air-currents of the moment; the latter may be tidal in nature, and gradually brought about as an effect of a larger cause. Even taste, however, changing from age to age, does not bespeak essential change in the abysmal depths of racial personality. Subjectively considered, therefore, emotion is something *enduring, essentially exempt from mutation*, however much superficially it may be subject to the Heraclitean law of flux and change.

"Nor if we consider emotion objectively, is there less cause for wonder. 'The fathomless universe,' of which Whitman so exultingly sings the praises, makes things of the intellect, as has already been suggested, very largely conjecture and mere hypothesis, subject to constant revision, while the very uncertainty which infinitude implies is for the supreme things of the heart the most fertile and congenial soil. Because the universe is still so baffling that the Psychological Research Society, despite formidable investigations extending over decades has not brought us one whit nearer certainty regarding immortality; or because matter and spirit in their essential reality are alike unplumbed and plumbless depths, Science must be mute so far as these ultimate problems are concerned. But cannot Poetry

speak, and has it not spoken? And is not docked Science, after all, a small price to pay for such compensating wealth as wonder and mystery? View it as we will, Emotion seems to have been a favorite child of the great Author of things, just as was Joseph to his father, Israel. Emotion too, wears a coat of many colors as a sign of the paternal preference; and not alone in dreams but in reality, sun, moon, and eleven stars, and, what is more, very Time and Change must make obeisance to it."

It is true that there are other means of expressing emotion beside that of music, such as spoken and written language, the imitative arts including sculpture, painting, architecture, and action and gestures as embodied in drama, but the one creative art, music, is the most adequate even more so than language, because of its greater variety of means. To be convinced of the truth of the above statement let us consider some of the elements which are employed in the expression of emotion, elements common to both spoken language and music: namely, the elements of pitch, volume, rhythm, and quality of tone. As an emotion grows the pitch becomes higher, the volume becomes greater, the rhythm becomes more rapid, the quality of tone frequently more harsh. This is a very common observation, a daily experience. Notice two men discussing something in which they are vitally interested, as, for instance, politics or religion.

Now in using these elements to express our emotions let us consider the resources as found in the spoken language and in music. In the spoken language pitch is limited to the natural range of the speaking voice, at least within an octave; volume too is limited to the natural strength of the individual speaking voice. The rapidity of the rhythm is limited to clear enunciation, and the quality of tone can be varied only by means of the speaking voice.

When we consider these means as available in music we find pitch almost limitless, at least eight octaves available on the piano or in the orchestra. The greatest extremes of volume can be reached by means of the brass instruments and the instruments of percussion, as well as the daintiest pianissimos combining voice and strings. The rhythm may be made slow thru the sustained tones, or accelerated to an amazing degree because of the technical mastery of the instruments. Almost every quality of tone imaginable can be brought out thru music. Take the singing voice and we have the various kinds of voices such as soprano, mezzo, contralto, tenor, baritone, and basso and each having its peculiar timber, some being lyric and others dramatic in color. In the orchestra we have still greater variety. In the string section we have the violins, violas, cellos, and

bass viols, all having a stringy quality and yet each having its characteristic color. Among the brasses we have the trumpets and cornets, the french horns, the trombones and the tubas. In the wood wind choir we have the flutes, piccolos, clarinets including bass clarinet, the oboes including the English horn, the bassoons including the contra-bassoons. The instruments of percussion aside from marking the rhythm also indicate the pitch by means of the tympani or kettle drums, and each has its peculiar tone color as heard in the thud of the bass drum, the crash of the cymbal, and the sharp snap of the snare drum and the dainty melodies sometimes given to the bells. In every complete orchestra we also have one or two harps.

As further evidence of the importance and vital relation of music let us go back to the beginning of things. "When the cave man performed the solemn rites of the sun dance, the war dance, the death dance, the nuptial dance, and all the dances to typify his slowly awakening emotions—when was there such a dance without its corresponding chant or drum beats? And so at the beginning of things, music took its place intimately and for all time interwoven with the whole range of human emotions."

The varied circumstances which abolished music when America was first settled created a precedent which has led many Americans into the false position of attempting to leave it out of the general scheme of things. That is impossible! Even if we should wish we could not now eliminate it. Just notice some day how many times you hear music of some sort! You will then decide that since we must have it let it be the best.

Now that we have gained some notion as to the nature of music as a means of expressing the most eternal part of our nature, our emotions, and the great variety of resources at our command, let us consider the "Ministry of Music," the place it does or ought to occupy in our social organization. What place music will finally occupy in our scheme of life will be determined by general considerations of broad, human usefulness alone.

In an understanding of our subject we must have a true appreciation of the social utility of music and a better knowledge of the necessary changes in the spirit and aims of musical instruction so that its social worth may be best realized.

Does it not appeal to you that music has a high personal and social worth as established in the fact that it has endured thru the centuries in a world where the law of the "Survival of the fittest" operates with the same fierceness in our social relation as in the animal world?"

The particular value of music in our social life is associated in our thought with the worth of fine arts in general. Even today we find those so narrow in their conception of life that they regard music and the other fine arts as 'mere ornaments' in life, the least in importance, "fit for girls and children," and undeserving of educational provision. This misapprehension is receiving a firm refutation by our thoro going students of sociology and psychology. It is now recognized that aside from pleasing the individual, music makes a large contribution toward social solidarity. This *enjoyment* of music is the mere superficial contribution. The moral force underlying it all is not so apparent but none the less operating.

In considering the social function of music there are several phases to be considered. In the first place it can furnish the highest type of recreation for the leisure hours of all classes. Men will seek a pleasurable recreation in a blind impulsive way. Why not furnish a recreation which is sure to be ennobling. We occasionally find those who take no leisure, who if they had the opportunity to hear good music might deem such leisure as worthy of their indulgence. Both as performer and listener a bond of kinship is established. In contrast we find a class of wealthy people whose time is all leisure, and how many make the highest use of their abundance of time and money? We blame them more than the working class because they seem to have nothing to prevent their highest enjoyment. But what of the enjoyment of these hours for all classes? Has society offered any education which would train them to enjoy good music? Musical appreciation in some degree is universal, but how can we seek the better and avoid the worse? If we do not know there is a better we are satisfied with the worse. In serving this function of making recreation ennobling music will also make recreation more recreative. From another point of view our specialized economic system has imposed a machine-like drudgery for working hours for which music can furnish the antidote. If our leisure does not become nobly enjoyable, it is apt to become ignobly enjoyable. If we have not been trained to enjoy leisure, the sense-appetite alone may appeal. Our lack of training is evidenced by the packed houses at the vaudeville, and moving picture shows, patronized indiscriminately. Even these houses have a good element if it were made to predominate. The people could be trained to prefer a Symphony Orchestra to a ragtime vaudeville singer.

Perhaps the most important social function of music is its moral significance. I use the word moral in a broad sense. Music takes human impulse and directs it along right channels so that the moral

end is served by positive action and not by prohibition of action or inhibition. Music stirs men to the doing of things. It has been ever true. The early peoples were brought together and socialized by means of their songs. The music of the church when properly used intensifies the truth presented. Some one has said "truth comprehended merely by the intellect is dead until embedded in the emotions." Then the living truth is revealed in action. The college song is by far the most potent factor in college life in making common bonds between men and creating a spirit and enthusiasm for the whole college community that is something deeper than the spirit shown by the college yell. In most countries, least so in America, a national anthem arouses the citizenship to common reverence.

We are not seeking a Puritan goodness which was without life, negative and unnatural. It embodied a spirit of "Thou shalt not." We want a virile morality which says "Thou shalt."

As we come to appreciate the ideal for music as a socializing agency, thru what avenues may we work to accomplish that ideal? There was a time in the history of music when no systematic education was necessary for its appreciation, but with the growth in complexity of life music has taken on a complexity of phases quite astonishing. In the process of this growth the private school has contributed much, but it is fast outgrowing the traditions of apprenticeship with music masters and with the shift from the private school to the public school our aim is changing from that of training skilled performers, to that of educating the *people* to an appreciation of music.

As you stop to consider it, is it not surprising that with such tremendous resources available for expressing the most permanent part of our nature, and with the social service capable of being rendered, I ask, is it not surprising that greater opportunity for its study has not been given, yes, even demanded in our public school system? America has been the slowest to embody the study of music in the curriculum of her schools, as a subject worthy of serious consideration, and yet did the question ever occur to you why we should not require eight years of music study in the grades as well as any other subject? Is there any reason why we should not have four years of systematic study of music in the high school instead of or as well as any other subject, as for instance Latin? American *tradition* is the only answer. Is it any less the expression of our life than the study of English?

Let us consider the courses in languages given credit in our high schools. Four years of English, at least two years of German,

and frequently one or more years of French; seven years of the written and spoken languages to say nothing of the four years of Latin and two years of Greek. No one of the above languages is universal yet music, a language of all mankind gets little or no recognition in many schools. The study of music purely as a *science* offers an unusually broad field little appreciated by those ignorant of that phase. As an *art* music touches the lives of many children and makes life a real thing. Where music has been given a large place in the schools it has been found that school life has taken on a new significance and the other subjects which had been previously dead either because of method of presentation or from some other reason, have become real and vital in the experience of the child. We would do well to furnish the American child the opportunities in music that the German child has enjoyed for centuries as his right. It might help to humanize our somewhat mechanical system.

In a commercial age when every attempt is made to evaluate a thing in dollars and cents, attention might be called to the fact that the town having large musical activity is regarded as a better place in which to live. In this and in many other ways music could be shown to be of commercial value to the community.

It is gratifying to note that all over the country today, the grades and best high schools are demanding the very thing suggested above. A number of our best colleges and universities have enlarged what was originally a department of music into a college of music with a well organized four-year courses with the twelve years public school training as a prerequisite. The courses in the college and university may be either liberal or vocational. So great an educator as ex-President Eliot of Harvard has said that could he choose his college course, he would omit such a superfluity as mathematics and substitute the practical study of music. Perhaps he remembers that music was not allowed in the public schools of this country until Lowell Mason, after years of unselfish effort, had proven conclusively that the children in the best schools, who had had it with other students, gained higher *general* standing than those who were not taking it.

A much larger appreciation of music is gained by active participation in music. This may not involve years of study in the technique of singing but may be experienced by every one. There is a movement on foot for community music. One of its strongest advocates is Prof. P.W. Dykema who is at the head of a Department of Community Music and Festivals in the University of Wisconsin. He suggests four lines of work. (A) Singing and other musical societies organized by the University and conducted either by its

representatives or people whom they have trained or with whom they can co-operate. (B) Series of lectures and musical entertainments directed by the University officials. (C) University co-operation and guidance in music affairs organized and directed by community officials. (D) Festival activities of the class described under C.

Under (A) he proposes the organization of a large chorus composed of every one in the community who is at all interested. Out of this group a second group could be organized later as a class in elementary music theory and practice similar to the Peoples Singing Classes of New York City. A third group could be later formed from the first two as a select organization for advancing singing. Then a Choral Union such as an Oratorio Society. In England there has also developed large music festivals from combining the Choral Societies of several towns and engaging an orchestra to assist. England has also developed the musical competition idea. Before audiences of 4,000 to 5,000 there are held competitions by church choirs in cities, choirs in small towns, choruses of girls under 18 years of age, male glee clubs, children's choirs, large mixed choruses and small madrigal societies. This competitive idea was carried into the instrumental field for bands, orchestras, and small instrumental groups. There were also trials of solos, duets, and quartets. Thus do we provide a school of music for the people. The means of carrying out these ideas I will not take time to discuss in this paper except as suggested in the outline.

Under B, Professor Dykema would include a definite series of lectures on "Music in the Life of the People," such lectures to be largely illustrated by the local group and form the larger part of the evening. The Extension department in each university can furnish high grade musical attractions to them.

Under C the university need only furnish guidance, for it is desirable that each local community direct its musical activities as far as they are able, but too frequently they have no local competent guide.

Under D every community could have its own spring festival of music.

To recapitulate: Music is an art, a science, a language used to express our emotions—that phase of our life most eternal and entering into every activity with the function of enlarging our vision and making richer every experience in whatever phase of life.

The Practical Significance of the Study of French

HENRY R. BRUSH,

Professor of the Romance Languages and Literatures, University of North Dakota

HERE is probably nothing more far-reaching in educational importance today than the current, widespread discussion of the aims and objects of public school and college instruction and the courses and their constituent elements by which these objects are to be realized.¹ This discussion has led to many fundamental changes and the frequent introduction of innovations, the value of which cannot at present be ascertained since it requires a period of years to estimate them. That there is widespread dissatisfaction with the old system is evident; it is equally plain that many of those who are finding fault and advocating certain radical reforms, *so-called*, are speaking superficially; they are not approaching the matter in a scientific way by inquiring into causes or by considering the basis of belief that the innovations they propose will really deal satisfactorily with the changed conditions and conduce to the popular good. In the anxiety to do something, the first preliminary to doing is neglected. It is clearly unwise to change an established order unless there is a positive good to be secured by such a change.

Without attempting to enter into any lengthy discussion of the conditions which have preceded the rise of this dissatisfaction and the consequent attempts to revolutionize the educational system, it may be said, albeit somewhat dogmatically, that among the determining elements in the present tendency are (1) the increasing complexity of the various phases of our social, political and industrial life, (2) that growing democratization of education to which attention has frequently been called and (3) the current insistence upon the practical and materialistic which is in itself more or less of an outgrowth of the first two of these elements. These things are facts which present sides both advantageous and disadvantageous. A natural sequence of the tendencies mentioned has undoubtedly been a growing emphasis on such branches of study as have a directly practical value and an increasing disrespect for such as are more generally cultural, to an extent that the latter are assumed by many

1. Cf. the letters and discussions published daily during the past six months in the columns of the **Chicago Record-Herald**.

to have no practical value at all. The word *culture* has come to be more or less under the ban, and to say that a subject is "cultural" is at once to condemn it in the minds of not a few persons, both of the laity and of the educational profession alike. Culture is given different definitions by different people; but, if we are allowed to style it as a fertilization of a man's mental and moral powers which will enable him to produce a crop of ideas by the aid of which he will be able to cope with and think through whatever problem may present itself to him in practical life, then culture is not something to be despised but to be sought after.

Among the list of cultural subjects none has held a more important place in disciplinary training during past centuries than the study of language. It is only within the past twenty years that this value of linguistic study has been seriously assailed. We have seen Greek almost totally displaced from the public schools and very largely from the colleges, and a similar process, to a lesser degree, acting on the study of Latin. The place of the traditional classics has been largely taken by the modern languages, partly on the supposition that they are "easier," partly because they are assumed to be more "practical." The arguments adduced for this substitution are, in the sense in which they are understood, largely fallacious. As a result there are not wanting signs that French and German are partly going the way of the ancient languages,—a fact pointed out very clearly by Professor Paul Shorey.² The outcome of the whole process has been a growth of disrespect for language, a subject which has formed the burden of two well-timed discussions on the part of recent presidents of the Modern Language Association of America.³ These discussions are well worth the careful consideration of every teacher on account of the clear way in which the elements of the situation are set forth and the scientific presentation of the probable results of the popular attitude. It is significant that these authorities make no attempt to lay stress on the effect of language study in cultivating a sense of the esthetic, desirable as that may be, but confine themselves largely to the exclusively practical results of the growing trend toward elimination of this phase of intellectual training.

From this passing summary of general tendencies toward language study we may come directly to the question of French and its place in any scheme of education. It is not a language studied in

2. Cf. *School Review*, October, 1910.

3. Cf. L. F. Mott, *Disrespect for Language in Pub. Mod. Lang. Assoc.*, Vol. XXVII, no. 1, pp. xlvii ff.; C. H. Grandgent, *The Dark Ages in Pub. Mod. Lang. Assoc.*, Vol. XXVIII, no. 1, pp. xiii f.

this country to any extent outside of the colleges and universities. This is partly due to our provincialism, but even more largely to the conception most Americans have of the French people. There is an erroneous, but widely diffused notion among us that the French exist for the more or less innocent amusement of the rest of mankind, that they are unstable, frivolous and unworthy of consideration. The eccentricities of a few misrepresentative individuals who have paid brief visits to our shores, and the rapid changes in French political organization during the past century have been assumed to lend color to this view. As a matter of fact we see little of the representative middle class Frenchman because he does not emigrate to any extent like other Europeans. Thus the average man has no basis for judgment. In reality, the French people are among the most conservative. Their thrift was several years ago commented upon favorably by such men as John D. Rockefeller and the late Senator Hanna, their financial status is most sound and their scientific men are in the very front rank of those who are laboring at the great problems of invention and investigation. Pasteur, Poincaré, Curie, Moissan,—what a list might be made if we were to attempt to enumerate all the latter! There is scarce need to bring up further facts controverting the conception about the French alluded to above. The notion has been mentioned merely because its prevalence has induced many to pass the French language by with the sweeping assumption that neither language nor literature has any special significance to the large majority of students.

The study of the French language, literature, and civilization by those who have little time to lose in getting down to the serious things of life may be given a three-fold value,—practical, historical and esthetic. The language itself, a descendant of the Latin, retains many of the qualities of the mother tongue and is characterized by the three great elements of purity, clarity, and precision. The study of it affords a training in those essentials which go to make up that effective expression of ideas which all persons need, whatever their sphere in life. No other language affords a better drill with more economy of time. In addition, the Frenchman is preeminently a thinker, and in the expression of his ideas the qualities of his language make it an admirable vehicle. There is in no literature a better outlining of a mode of thought or of a mode of expressing it than one finds in such a work as Descartes' *Discours de la Méthode*, in the controversial writings of Pascal, in the criticism of Sainte Beuve or in the historical works of Taine. Two of the most serious faults, in justice charged against our American students today, are the failure to think much or deeply and

the inability to express ideas clearly and forcibly. Vagueness, incoherence and superficiality are the order of the day. French, with its greater rigidity of grammatical structure, its finer, subtler shades in syntactical expression, its exactness in diction and the polish which has come from far greater devotion to formal literary art than has characterized either Englishmen or Germans to a great extent, is the antidote for much of the shortcomings in student thought and expression. It is claimed that French literature has the disadvantage of not being so original as certain others. This is largely true, but even so, there is an advantage in it. It has become more critical and more universal. The great critic is rarely the great creator.

From her geographical position France has been the meeting place of all the great ideas of modern times. The French mind has been the solvent of European ideas, the clearing house of international conceptions. No great proposition has passed through the French intellect without being reduced to usable form and definite, precise statement. In the literature of France one finds the epitome of modern civilization, the most representative of literatures. Surely, the liberally and practically trained student should have some knowledge of this storehouse. It is in the nature of the French investigator to go scientifically to the bottom of things with a desire to view them rationally and express them truly. Boileau's dictum, "Nothing is beautiful but the truth," words the conscious ideal of the French mind. It is a quality which has brought Frenchmen to the front in science, medicine, invention, education and the science of government. The requirements of our own graduate and scientific schools show the recognition of this fact. The lesson of Gallic accuracy and fidelity to truth is worth laying to heart by the American student infected with the virus of superficiality.

From the historical side it is fair to point out that France had a great part in exploring and developing this country of ours. The whole Missouri Valley belonged to her at one time by right of discovery and occupation, French missionaries opened up the Mississippi basin to civilization, French names dot our maps from the Alleghanies to the Rockies. A Frenchman, La Verendrye, was the first white man to set foot in North Dakota. Some of the most influential families in the United States, such as the Duponts of Delaware, are of Huguenot descent, French aid in the Revolution was the deciding factor in establishing our national independence. Lastly, the two most important documents of American political history, the Declaration of Independence and the Federal Constitution, are practically compiled from the writings of three of the most important French thinkers of

the eighteenth century,—Montesquieu, Rousseau and Condorcet.⁴ A nation having so large a part in building up the political structure of the United States, after having contributed to its formation, and in opening up the territory which our nation covers, deserves more than passing attention.

There remains the esthetic question. It is to us of enormous importance although our purpose here is to stress more strongly the practical side. To say that a man shall be educated by the state only along practical and utilitarian lines is to assert that he is to be educated narrowly. To us in North Dakota the utilitarian has a significance greater than in the East, for here we are still struggling with the elementary forces of nature. But the time is at hand when the victory shall be complete, and then the training of the intellect will show its supreme value. There is a practical value even to the unpractical. France is possibly the most highly civilized of all modern nations. Her civilization is the product of two thousand years of slow well-organized growth and is elaborated by the refinement of time. Her contributions to art, to music, to literature, to architecture, to culture, to all the finer things of life are vast in number. If we wish to live by the way at all we cannot afford to pass these things by utterly, even tho the matters of farm credits (a subject, by the way, already developed by the French), of industrial developments and of the general affairs of the workaday world appear justly of such basic importance to us.

We may well deprecate the disrespect for language that is upon us. We can ill afford to make our schools into factories and our educational training purely empirical. To pass by the classics to the extent that we are doing is a most unfortunate step. Likewise is it unfortunate to limit the study of the modern languages until but a smattering of them is gained and to leave it to the untrained judgment of the immature student to choose as he will from that he knows not of. And in all the process nothing is more unfortunate than the ignorance of French,—an ignorance so great as to be ignorant that there is anything to learn—because the French language and the French mind are in so many ways different from ours and contain so many of the very elements which it would be most conducive to our good to learn. To get the viewpoint of a race so different from our own is, in itself, the source of added breadth of view and power.

4. Cf. Montesquieu, *Spirit of Laws*; Rousseau, *Social Contract and Discourse on Inequality*; Condorcet, *Sketch of a Historical Picture of the Human Mind*.

Book Reviews

PSYCHOLOGY AS APPLIED TO EDUCATION: P. M. MAGNUSSON, State Normal School, St. Cloud, Minnesota. Silver, Burdett and Company, Boston, New York, Chicago, 1913. IX+345 pp.

The central tendency of the psychology of today is to work over into practise. It is attempting to solve the problems of practical learning, of advertising, and of human efficiency. The book under review reflects this practical tendency and might be called the psychology of pedagogy.

Dr. Magnusson makes the attempt to correlate the principles of psychology and the principles of education by analyzing out the psychological processes and directly putting them into the pedagogical harness. He begins logically with the sensations and runs the scale of mental processes up to the highest, thinking, and passes on to the ideal and emotional factors of life in which habit, character, and will have their places. Part I concludes with a discussion of childhood, early adolescence and youth, showing again the place of the above three factors. It would seem advisable to elaborate the features of this section of the work.

The analytic psychology of Part I does not reappear as prominently in Part II (The Pedagogical Application of Psychology) as one might be led to expect. This section of the book is concerned chiefly with the pedagogical questions of studying, teaching, and doing, with little overt application of the psychological principles laid down in Part I. In view of some of the practical movements in the direction of reforming our school systems and the curriculum, the final chapter on the reorganization of the school curriculum is *a propos*.

No doubt that many of the things that a few writers of the present day are ascribing to the subconscious life are more properly referable to the processes of apperception and the automatic nature of habit complexes. Secondary consciousness would perhaps be a more representative term to employ in this connection and would liberate us from the conception of consciousness as a mere scrap-heap of former cognitions. The features taken up in our text under the caption of The Subconscious Life are highly commendable, but their explanation is irreconcilable to our thought. A verbal error if not an error of conception may account for the fact that the author seems to consider the mind as the agent of the sensations, impulses, and ideas and not as being identical with them.

The book is the result of specific work in the class-room and contains many practical suggestions based upon principles tried out by the author, and for this reason is stimulating and helpful.

J. W. TODD

Department of Psychology,
University of North Dakota

THE DRAMA TODAY: CHARLTON ANDREWS: J. B. Lippincott Company, Philadelphia and London, 1913. VI+228 pp. Price \$1.50.

Mr. Charlton Andrews in his book, "The Drama Today," had something of a Herculean task to accomplish in presenting, as its leading feature, the principal characteristics of the most noted dramas extant at the present time in Europe and America. But his ability to grasp the main contents of a play and to condense it into a concise and lucid sentence or paragraph is, undoubtedly, one of the distinctive qualities of the book.

One cannot have read far into the first chapter before he is aware of the forcefulness and resourcefulness of the author. The expression, "Cyrano de Bergerac versus his nose," brings out vividly and sharply the mental struggle in Rostand's great play. His discussion of plot, dialog, and characterization carries with it an individual charm; and especially helpful are his illustrations of some possible dramatic situations. Herein he throws the searchlight upon some spots which have hitherto, perhaps, not been so well illuminated in any book covering so large a subject. I refer to the definite way in which he handles some of the thirty-six fundamental dramatic situations.

In the chapter, "Realism and the Literary Drama," one perceives the author's leaning towards the romantic drama and his idea of the impossibility of making any play, in any playhouse, at any time genuinely realistic. Such a scheme is futile, since the stage must necessarily always be built upon the foundation of illusion. The aside and soliloquy, with their literary merits, appeal to Mr. Andrews, who sees no reason why they should not be made to contribute a legitimate purpose in the construction of the drama as well as do some of the clap-trap illusions served up at the present day.

The chapter, "The Americans," which displays much artistic criticism, might have been improved if less time had been spent, say, on Clyde Fitch and Edward Sheldon, and more emphasis placed upon other playwrights. James A. Herne is scarcely noticed. The great

human chord struck in his "Shore Acres," albeit some scenes were forced and unnatural, calls for more than a somewhat scathing criticism. Besides, memories of his "Margaret Fleming," tho years have passed since it was witnessed, will arise and insist upon asserting that that play was really one of our best American dramas. Moreover, Rachel Crothers is mentioned only incidentally, who gave in the climatic act of "The Three of Us," the modern American woman with her nervous, forceful, courageous character, and her ethical standard in regard to social purity. Furthermore her play, "A Man's World," contains as crisp and truthful dialog as has yet appeared in any of our American dramas. Tho the author of "The Drama Today" may feel that William Vaughn Moody has been given undue praise, has not Mr. Andrews bent backwards in the other direction in his somewhat derogatory criticism of "The Great Divide?" Is not this play, possibly, the nearest approach as yet to an American literary drama? No mention whatever is made of the one-act American plays. Surely George Middleton deserves favorable mention for his exceedingly artistic work in any chapter devoted to the American drama.

Since the English dramatists deal so largely with the problem play, Mr. Andrews makes that the basis of his criticism in his chapter, "The British." Sir Arthur Pinero is dealt with fairly and squarely, but Bernard Shaw, O! where is he when Mr. Andrews has finished with his scalpel? The tirade against this brilliant playwright is rather prolonged and verbose. Mr. Andrews sees scarcely more in Bernard Shaw than a didactic usurper making use of the stage to preach his own doctrines. We beg to differ from the author in regard to "Man and Superman," that "it presents no further dramatic struggle than the conflict of the character's ideas, a conflict which necessarily evenates in nothing." Does it? Is it for nothing, the struggle and winning of the Superman by the life force? It is something to have done for the drama what Ashley Dukes credits Bernard Shaw with, namely, the creation of "more vivid individual types than any other living author," for characterization surely counts for something in the drama as well as in the novel. In relation to Mr. Galsworthy's "Justice," the author writes, "As a matter of fact, however, the man's death is not caused by justice, but by the fact of woman and her predicament." Is that true? Would the predicament have arisen but for justice? As a whole the Celtic dramatists, probably, received the most sympathetic treatment. One wonders if a novice in the knowledge of Modern English drama would relaise the big-

ness of the dramatic situation in England by a perusal of "The British."

The author's own words will indicate his attitude towards five at least of the most noted Continentals: "Best of all, it [Chanticleer] is eminently sane and wholesome—like a great and glorious current of fresh air after the close and stuffy atmosphere of Ibsen, the misty, sickly gloom of Maeterlinck, the loathsome putrescence of Hauptman, and the pathological miasma of D'Annunzio."

Mr. Andrew's chapter, "Prospectus," points to possibilities of better dramatic conditions to come thru interested philanthropists, Little Theaters, Drama Leagues, Theater Clubs, and more artistic stage settings.

One might question whether the readers of "The Drama Today" could possibly realize, from its content, Clayton Hamilton's statement, "The greatest age of the drama is now."

ABBIE L. SIMMONS

Department of English,

State Agricultural College of North Dakota

PSYCHOLOGY IN DAILY LIFE: CARL EMIL SEASHORE, Professor of Psychology and Dean of the Graduate College in the State University of Iowa. D. Appleton & Co., New York, 1913. (19 figures.) VII+226 pp. Price \$1.50 *net*. By mail \$1.62.

This book is one of the "Conduct of the Mind" series, edited by Professor Joseph Jastrow. The series has for its general purpose the popular interpretation by various authorities of selected tracts of mental behavior in their relation to practical life. The present volume affords a racy description of play, serviceable memory, mental efficiency, mental health, mental law, law in illusion, and mental mesurement, from which religious, ethical, pedagogical, hygienic and economic lessons for life are drawn. Unlike many scientists whose energies seem wholly submerged beneath the level of practical issues, Dean Seashore has successfully cultivated the art of so popularizing his findings and applying them that the layman may comprehend and receive benefit. Of the many quotable passages revealing his rare psychological penetration and exposition the following is characteristic:

"When the boy is to learn to raise his hat he should be free to acquire the feeling that the raising of the hat is a sign of good breeding; that it is an honor to himself and to the person greeted; that it gives a delightful feeling of satisfaction in power and self-mastery;

that it goes well with a smile and a compliment; that it brings returns; that it is a means of relieving pent-up energies by knowing how to dispose of the hands; that he can thereby express individually his appreciation of the person greeted; that raising the hat is not that trifling physical act alone, but, when properly done, is the entering of one mind into relation with another; that this little act of manners is a part of the making of the man; that if he does this with all his heart he will acquire the power to do greater things with the same ease."

From the standpoint of the advancement of science the chapter entitled "Mental Measurement" is, perhaps, the most significant. For several years Dean Seashore and his graduate students have been making experimental contributions to the psychology of music; hence an outline of the measurement of a vocalist is presented as an illustration of the scope and value of mental measurement in general. The survey embraces references to such sensory elements as pitch discrimination, tonal range, timbre, intensity (loudness); to such motor elements as registers, singing intervals, curves of learning; to such associational elements as type of mental imagery, memory span, creative imagination, musical grasp; to such affective elements as the character of musical appeal, emotional reaction to music, esthetic interpretation in singing. The practical bearing of the self-knowledge which such an analysis yields is obvious.

The author's style is crisp, clear, direct and free from undefined technical terms. The fact that the volume is intended for popular distribution and that its author has so freely drawn upon his own resources, accounts for the absence of numerous footnotes, references to learned bibliographies, and the usual index of topics and names. Nevertheless, when one comes to the close of the book he is rather disappointed not to find an appended bibliography for the guidance of further reading for which a desire has been created.

K. R. STOLZ

Department of Religious Education,
Wesley College

THE RISE OF THE AMERICAN PEOPLE: ROLAND GREEN USHER.
The Century Company, New York, 1914. XII+413 pp.
Price, \$2.00 net. Postage extra.

In the preface the author explains the purpose of the present work, he tells us it is to present in broad outline the results and the meaning of our national development. As a sub-title he has chosen

to call his work a philosophical interpretation of American History. The plan of the work, as presented in the table of contents, hardly carries out the promise of the title or the theory stated in the preface. Twenty-two of the twenty-nine chapters are devoted largely to two subjects, the American Revolution and the slavery controversy. This is not new, the New England historians having given us numberless variations of the first theme and point of view, while Von Holst's forgotten history stands as the classic example of such an interpretation. Such popular impressions of what constitutes our national history are as misleading as they are unfortunate. Instead of being based upon the work of the scholar, generalizations and conclusions like these are in plain violation of its methods and results.

The author succeeds admirably in presenting in an interesting and forcible manner the military portions of our history. The material he presents in these chapters is new and will be most welcome to those who have heretofore only the conventional accounts available for use. His statement of the slavery situation and the southern viewpoint of the race question is clearly and logically presented. The whole work is a singular union of the viewpoints of two sections, New England and the South. The first half of the work is devoted largely to the record of the former section in colonial development, with special stress upon the place held by Massachusetts. In the second half of the work the emphasis and attention are completely transferred to the south and to the problems arising from slavery. This method of handling history is common enough but rarely is it dignified by the term philosophical. As a purely impressionistic sketch of certain salient features of our history, the work will find a large circle of readers who do not care for the discrimination of the historians and scholars now at work upon the tangled mass of our sources.

Some of the conclusions in this work seem more forceful than real, as when we are told that the United States would not exist "but for this deep and abiding racial belief in the location of the Elysian Fields." Again, the author lays much stress upon the divergent viewpoint of creditor and debtor as the philosophical basis for our forty divisions. In referring to the American Revolution as the outcome of much conflict he says: "Such an alignment of debtor and creditor was natural enough and has always appeared at the beginning of great wars." Manifestly it is hardly worth while to take such statements seriously, since they do not rest on evidence or indeed upon anything more tangible than a mere impression gained from a hasty glance at certain aspects of our history.

The work is especially weak in its failure to present the larger aspects of our constitutional development and the intimate relations existing between England and America down to the close of the Revolution. Equally deficient does it appear in the outline of national evolution sketched in the chapters following the discussion of the adoption of the Constitution in 1788.

O. G. LIBBY

Department of History,
University of North Dakota

University Notes

H. S. Conference and Inter-Scholastic Meet The Thirteenth Annual High School Conference and Inter-Scholastic Meet took place on May 15 and 16. The weather was ideal, and the programs were carried out in accordance with preceding announcements.

The High School Conference was attended by a larger group of high school men and superintendents than at any former time in its history. Two delightful addresses were given by Professor H. L. Miller of the high school of the University of Wisconsin. In these addresses Professor Miller emphasized the reorganization of education along the lines of economy of time and the necessity for better teaching and a clearer apprehension of the problems which confront the teacher and the superintendent.

The discussions upon matters relating to the government of high schools in the state centered about the matter of examinations, which finally took the form of a motion to recommend to the State Board of Education the abolition of the State High School examinations.

On the athletic field more than 100 high school boys from different parts of the state competed for places and records, and a number of state records were broken; while the contestants from Hatton and Rolla, in the final debate on Friday evening, discuss the merits of the terminal elevator system, the team from Hatton winning the decision of the judges. The declamation contest was delightfully given by three girls and three boys, the award of the judges being given in the following order:

Girls:

1st Prize, Doris Kemper (Minot), "Enoch Arden," Tennyson.

2nd Prize, Marion Sutherland (Fargo), "The Keeper of the Light," Van Dyke.

3rd Prize, Jessie Gillespie (Grafton), "The Death of Paul Dombey," Dickens.

Boys:

1st Prize, David Leipsic (Grand Forks), "A Lover of Music," Van Dyke.

2nd Prize, Thurman Thompson (Park River), "Mark Twain; An Interview."

3rd Prize, Theodore Hale (Fargo), "Ballad of the East and West," Kipling.

In these two days of interesting meetings and the coming together of so many young people from different parts of the state, the University acted as host, and congratulations are certainly to be extended to the many who took part for the way in which the whole program was carried out. The most interesting thing done by the University in the way of entertainment was the giving of the annual May Fete on Friday evening. Under the direction of Miss M. Esther Pike, Physical Director for Women in the University, the Fete was very successfully carried out.

President McVey's Eastern Trip A very interesting conference was held in Chicago, the second of its kind, during the month of April. This conference was called the Second National Conference on Marketing and Farm Credits. To this meeting came many delegates from different organizations representing the producers, the consumers, the wholesaler, the retailer, the cooperator, and the university man. For four days the Conference discust various phases of the marketing problem, and finally adjourned with the proposal to meet again next year, and, thru the agency of a Committee of Fifteen, organized for that purpose. The President of the University of North Dakota attended the Conference, contributing a paper at one of the meetings on the subject of the Moss-Fletcher Bill, which deals with the matter of Farm Credits. President McVey presided at a majority of the meetings and was called upon to name the members of the Committee of Fifteen for the continuance of the Conference.

From Chicago President McVey went to Washington to present to the National Commission on Vocational Education his views concerning federal legislation on that subject. The Commission was appointed by President Wilson under a resolution of the last Congress, and is expected to have an important bearing upon the whole subject of vocational education.

Commencement Week The commencement exercises of this year follow the general order established the past several years, with the addition that Saturday, June 13th, is devoted to the installation of the new chapter of Phi Beta Kappa. Sunday evening at 8:30 o'clock the Rev. Dr. R. A. Beard of Fargo delivers the annual baccalaureate sermon in the gymnasium. Monday is devoted especially to the Senior Class exercises, the senior pilgrimage and the class farce. Tuesday is Alumni Day with a luncheon at noon, the University address by Dean Joseph Kennedy at 2:30 p. m., the

alumni dinner at 6:00 p. m. and a band concert and party at night. Wednesday is Commencement Day. The procession of the faculty and the senior class in academic costume will form at 9:30 a. m. and march to the gymnasium where the graduating exercises will be held.

The graduating class of this year numbers 73 divided as follows: Liberal Arts 27, Engineering 7, Law 16, Medicine 2, Education 21. There are also 4 candidates for the Master's degree and one for the degree of Doctor of Philosophy.

Fellowships and Scholarships

Following the custom of former years, the Board of Trustees has provided certain fellowships and scholarships for the next academic year, that of 1914-1915. 1. One industrial fellowship yielding an income of \$400, available in the School of Mines. 2. Three general fellowships yielding an income of \$300 each, available in any of the colleges of the University. 3. Three general scholarships yielding \$150 each, available in any of the colleges of the University.

From many applications received from students and graduates of our own and other institutions, the following appointments were recently made by the Board of Trustees upon recommendation of the University Council:

William J. Leenhouts, B. A. (Hope College, 1913), M. S. (University of North Dakota, 1914), Fellow in Chemistry.

Dalton G. Paxman, B. A. (University of North Dakota, 1914), Fellow in Biology.

William C. Whitford, B. A. (University of North Dakota, 1914), Fellow in History.

Theodore Roy, B. S. in Mining Engineering (University of North Dakota, 1914), Industrial Fellow in the School of Mines.

Lizzie M. Brown, B. A. (University of North Dakota, 1914), Scholar in History.

George St. John Perrott, Jr., B. A. (University of North Dakota, 1914), Scholar in Physics.

William B. Stevenson, B. S. in Civil Engineering (University of North Dakota, 1914), Scholar in Engineering.

The Summer Session

The Summer Session of the University has come to be regarded as a permanent feature of the yearly program. It is planned for and looked forward to as definitely as either of the two full semesters. It has come to serve a very useful purpose for many people, and in many ways. Very few

students need so long a vacation as from the middle of June to the last of September, and many now plan to make use of the Summer Session. In this way one can easily cut short by at least one semester the period of time necessary for completing the work. Again, many teachers of the state who are, of course, engaged during the remainder of the year look forward to the Summer Session for profitable work. Several are now planning thus to complete the work for degrees.

Present indications point to a very successful season for 1914. Several additional lines of work are to be offered, including Art and Design, French, Spanish, Scandinavian, Library Science, and Physical Education. The session opens on June 22 and continues for six weeks, five days in the week, closing on July 31.

The North Dakota Academy of Science The Sixth Annual Meeting of the North Dakota Academy of Science was held at the State Agricultural College at Fargo, on Saturday, April 25. On the evening preceding the sessions an informal reception was tendered to visiting members by the Fargo members, at the Hotel Gardner. The meeting was unanimously declared to be the best in the history of the organization. In all, fourteen papers of more than usual interest were presented and discust, and more than one hundred members and visitors attended the sessions. The University was represented on the program by six members of the faculty as follows:

Professor A. G. Leonard, who was also president of the Academy, spoke on Some Aspects of Glaciation in Western North Dakota. Professor Howard E. Simpson discust the Balfour Esker. The Unusual Distribution of Flow last Winter in the Red River Tributaries was the subject of a paper by Professor E. F. Chandler. Professor George A. Abbott, also Secretary-treasurer of the Academy, spoke on the Radioactivity of North Dakota Soils and Water. Professor A. Hoyt Taylor discust Radio-communication, and Professor Robert T. Young spoke on the University Biological Station at Devils Lake. Six other members of the University faculty attended the meeting: Drs. Anderson, French, Heath and King, and Messrs. Daniels and Leenhouts.

The Psychological Laboratory Dr. John W. Todd of the department of psychology at the University has just completed two new psychometric devices that represent distinct additions to the science of psychology. One is a combined electric chronoscope and tachistoscope and the other a multiple ergograph. The chronotachistoscope is a device for investigating the time-relations of mental

processes, the factors in perception and attention, and the speed with which the various mental acts may transpire, such as the shortest time interval within which a simple conscious choice may be made, or a discriminated action may take place. The range of the chronoscope is between two thousandths of a second and seven-tenths of a second, an interval sufficient for all simple discriminative acts and those too short to be measured by the stop watch. The tachistoscopic device permits the giving of visual stimuli of various kinds and amounts and makes it possible to expose them for time intervals of from one-twentieth to seven-tenths of a second. In this manner the time factors of retinal stimulation can be derived by diminishing the intensity of the stimulus and the length of time interval until the sensation reaches the vanishing point. The device has other uses valuable in the allied fields of psychology. Dr. Todd devised an entirely new method for laying the chronometric scale, using two differential tuning forks of equal frequency so arranged that one recorded its vibrations upon the disc of the chronoscope and the other upon the rapidly revolving drum of a kymograph. By this arrangement it is possible to read from the kymograph the exact amount of time that was consumed while the latent period of the electro-magnet, whose release starts the chronoscope, and the inertia of the disc and weights was being overcome. It was necessary to determine this before the time scale could be exactly laid. This section of the work was somewhat difficult and called for several special devices. To minimize the element of friction Dr. Todd has used cone bearings in the instrument. The apparatus is relatively simple and light and economizes two psychological instruments in one.

The multiple ergograph is designed to measure work and fatigue, muscular efficiency, the power of suggestion, endurance, and other allied questions. By means of it the diffuse nature of nervous discharge, the integrative action of the nervous system, the reinforcing effect of stimuli of various kinds, the effects of bilateral muscular contractions can be shown or measured. Dr. Todd has devised a recording apparatus from whose dial the force of single contractions or the total of a number of continuous contractions may be read in kilograms. Much of the efficiency of the new instruments is due to the careful and exact work of Mr. Blaine, the University mechanic, who constructed all the parts except the ergograph recording apparatus.

The Mississippi Valley Historical Association An interesting event in the history of the University was the Seventh Annual Meeting of the Mississippi Valley Historical Association, which occurred at Grand Forks, May 26, 27, and 28. This Association has a large membership among the teachers of the Middle West, particularly from the universities. The program brought to us, therefore, many speakers of established reputation who drew interested audiences. It will not be possible here to give an extended account of the program, but the general plan may be briefly described. The program was opened Tuesday morning in the City Hall by Governor L. B. Hanna, who presided and delivered an address of welcome. The afternoon session included both a general program of the Association and a special meeting of the sociological section. The evening session was, however, the principal effort of the day. At this meeting President Frank L. McVey of the University of North Dakota, presided, and Professor M. D. Learned, of the University of Pennsylvania, spoke on the Government's Policy Regarding Immigration. At the close of the address a reception was tendered to members and visitors at the home of President and Mrs. McVey. On Wednesday regular sessions were held morning and afternoon, and in the evening occurred the Commercial Club banquet, at the University Commons. Mr. A. D. Albert of Minneapolis presided as toastmaster, and the following speakers responded to toasts: President Frank L. McVey, University North Dakota; Mr. F. W. McWilliams, Winnipeg, Canada; Dr. Luther M. Kuhns, Omaha, Nebraska; Judge C. F. Amidon, Fargo, North Dakota; Professor M. D. Learned, University of Pennsylvania, and Judge A. A. Bruce, Bismarck, North Dakota.

Thursday morning was given to the meeting of the teachers' section, over which Professor Joseph Kennedy, Dean of the School of Education in the University of North Dakota, presided, and in which Dr. John M. Gillette, of the Department of Sociology, University of North Dakota, gave an address on "The Training of History Teachers." The afternoon was of special interest in that it was devoted to a study of the German immigration into the West and Northwest. Professor Learned again appeared on the program. Dr. William G. Bek, of the Department of German, University of North Dakota, also contributed a paper—"The Germans in North Dakota." The success of the meeting was very largely due to the efforts of Dr. O. G. Libby, local member of the executive committee.

The Pageant of the North-West The Historical Pageant of the Northwest, given on Friday evening, May 29, as the last number on the Historical Association program and repeated on the Saturday evening following, has proved an event of very widespread interest. The pageant was a dramatization of several events in the early history of the Northwest, including Radisson's dealings with the Hudson's Bay Company, incidents in the life of LaSalle, explorations of Verendrye, and the Lewis and Clark expedition with Sakakawea as the principal character. The work was done by the Sock and Buskin Society of the University under the direction of Professor F. H. Koch. The historical phases of the work were in charge of Dr. O. G. Libby. Great pains were taken to render the presentation historically accurate, as well as to embody it in artistic form. Of special interest was the Indian music, and the Indian and folk dances, patterned directly on authentic originals. The performances took place in the new open-air theater on the campus, dedicated on the evening of the first performance as "The Bankside Theater."

The preparation of the material, the music, the costuming, and the acting were of a high order. The enterprise has served to arouse a commendable interest in the early history of the Northwest. Of the pageant movement in general, and of the further details, it is unnecessary to speak as Professor Koch has prepared a brief discussion of the subject for the columns of the *Quarterly Journal*. Following is a list of the persons who directed the pageant, together with the capacity in which each served: Professor F. H. Koch, Master of Pageant; Dr. O. G. Libby, Director of Historical Material; Professor W. W. Norton, Director of Music; Miss Esther M. Pike, Director of Dancing; Miss Flora E. Balch, Director of Costumes; Mr. J. A. Taylor, Director of Properties and Stage Settings, and Miss Nellie Kingsbury and Mrs. Christine Nielson Myrben, Directors of the Stage. As a permanent record of the event a book was prepared which contains the complete text of the material used and an account of the work of the Sock and Buskin Society since its organization in 1909.

Dedication of the Bankside Theater Some few years ago the Sock and Buskin Society of the University of North Dakota presented Shakespeare's *Twelfth Night* on an improvised platform in the open air on the campus. So successful was the performance, and so delightful the experience for both performers and auditors that the Society, and indeed the entire University community, has since been looking forward to a permanent open-air theater on the campus. This spring

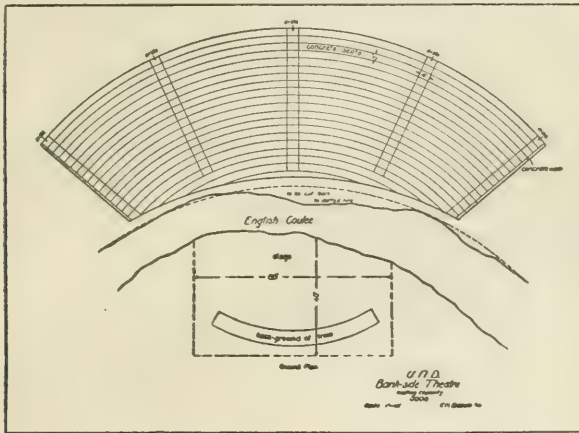


"THE BANKSIDE THEATER," UNIVERSITY OF NORTH DAKOTA
A Scene in "A Pageant of the North-West"—the Initial
Performance, May 29, 1914



"THE BANKSIDE THEATER," UNIVERSITY OF NORTH DAKOTA
An Indian Scene in "A Pageant of the North-West"—
the Initial Performance, May 29, 1914
The Lewis and Clark Expedition

while at work on the "Pageant of the North-West," the consummation of that desire seemed more than ever a necessity. Indeed, the Pageant could not have been given in any appropriate manner without such a setting. With the hope of finding a fitting place, the campus, especially the irregularities along the English coulee that winds its way thru from north to south, was carefully examined. Such a place was found where the Coulee makes a graceful curve leaving on one side, within the bend, a flat surface of considerable extent, and directly opposite, across the stream, the banks gradually sloping upward to a height of fifty feet or more. The flat surface, with trees here and there, make an excellent stage, and the semi-



Original Plan of the Bankside Theater

circular banks furnish very satisfactory seating accommodation—the whole a most ideal amphitheater of fine proportions.

With the place decided upon, a suitable name was sought. One was easily found thru a combination of the location itself, on the banks of the little stream, and the name of that section of old London where was located the famous playhouse of Shakespeare—the Bankside region. The initial performance of the "Pageant of the North-West" on Friday evening, May 29, offered the occasion for the dedication. Following will be found the address of dedication by Professor Frederick H. Koch, representing the Sock and Buskin Society, and that of acceptance by President Frank L. McVey, representing the University:

ADDRESS OF DEDICATION

President McVey, and Ladies and Gentlemen:

"The theater is literally making the minds of the people today," proclaims George Bernard Shaw. And what is the theater, this institution seemingly so irresistible to the people? It is no mere place of amusement. The theater has always been cherished by the people because it is one of the greatest educative forces in the world of man. So it was regarded by the wise Greeks; such was its achievement in the all-comprehending brain of a Shakespeare; such should be its place in our new life of today.

Conceived as a ritual of religion, the stage has in every age ministered to man in his ceaseless quest for beauty. It is a place where all may come to contemplate the mystery and share the joy of our common human nature, a place where every man may mold his dream in living clay, where each may re-create for himself in art, the wonder of life.

Firmly believing these things, the Sock and Buskin Society has planned the establishment at the University of North Dakota of an open theater, where the people of the state may gather under the sun and stars to participate again and again in the miracle of dramatic art.

This place, so fittingly framed by nature to the purpose, we offer to-night as "The Bankside Theater" of the University of North Dakota. The name was suggested by its location on the banks of this historic stream where in years long past the white man met the Indian in friendly trade. Also it was suggested by that region of old London, known as "Bankside," where stood the timeless theater of William Shakespeare.

Simple may be our beginnings here to-night, but not too rude, we hope, to be cherished by those that shall come after. For in the moving pageant of time—Truth—Beauty, remain forever unchanged. And to-night the same clear stars that looked down on the white theater of Sophocles more than two thousand years ago at Athens, look down on us serenely still at "The Bankside."

May this, our pioneer stage of today, play well its part in the movement towards a new drama, a drama which will interpret for all time the dream of an emancipated people, a drama which will yet give us a new Shakespeare, an American.

ADDRESS OF ACCEPTANCE

Professor Koch, and Ladies and Gentlemen:

In a recent issue of the London Times there was an article describing Shakespeare's Bankside Theater. It was said to

be situated in a swamp. Professor Wallace of the University of Nebraska, whose researches in the Shakespearean lore have been more extended than those of any other scholar, prints a copy of an order from the London authorities to the directors of the Globe Theater corporation, commanding them to remove the supports of a bridge leading to the theater from the sewer ditch. Our Bankside Theater, named after the one of Shakespeare's day, is more happily situated; a grassy bank, a meandering stream, and a background of trees furnish the setting. We may have too, in the music of the frogs the materials of Aristophanes' chorus, and in the buzzing of mosquitoes the realism of nature. This outdoor theater, crude as it may now be, is the beginning of a really great thing. Here, under heaven's canopy, tho it now threatens the use of umbrellas, we may see depicted the scenes of history, of drama, of life. Without question, it widens our horizon, and gives us new visions of what we can do in our own community for the bettering of the ideals of art. The idea is wholly that of the Sock and Buskin Society. They are to be commended, we are to be congratulated, upon an enterprise so auspiciously begun.

There is much to be done to transform the sloping bank with its wooden benches and scattered chairs into a real theater. So enthusiastic will you become over your enjoyment of the night's program, that I expect to find checks in Monday's mail aggregating several thousand dollars. With such funds a real theater can be built. It is a pleasure for me to accept the Bankside Theater for the University of North Dakota, and in doing so I grasp the hand of Professor Koch in warm appreciation of what has been done thru his direction and the ardent co-operation of hundreds of students and many members of the faculty.

Hazlett Lectureship in Wesley College The readers of the QUARTERLY JOURNAL doubtless know something of the affiliation existing between the University of North Dakota and Wesley College. Under this arrangement the University furnishes the students of Wesley College, as it does all other students who come, with instruction in all the arts and sciences usually found in a well equipped institution of higher education, thus rendering it unnecessary for the College to maintain extensive laboratories and libraries or to provide instructors in the ordinary academic branches. On the other hand, Wesley College provides for the students of the University opportunities for the study of religion and theology that can not well be presented in a State institution. It is seen at a glance that the affiliation can be made very useful to both institutions. Indeed, many

specific instances of mutual helpfulness could be cited. The purpose of this note is merely to call attention to the general fact of affiliation and to mention one specific contribution annually made by Wesley College, and highly appreciated by the University community—the Hazlett lectureship.

The lectureship was begun in 1907 thru the generosity of Mr. and Mrs. Thomas L. Hazlett, of Valley City, North Dakota, who gave to Wesley College the sum of \$10,000 for the purpose of promoting knowledge of religion and philosophy. The Faculty of the College, after much careful consideration, and in full accord with the wish of the donors, decided to use the bequest as an endowment for a lectureship that should bring to the two institutions and to the community at large, each year, a scholar of eminent rank to discuss some fundamental moral and religious question. This plan has been adhered to since its inception, and with great success. Dr. Edward P. Robertson, President of Wesley College, has been very happy in his choices of lecturers. Never satisfied with anything less than the best available, he has brought to the institutions, from year to year, only strong men, men of character and moral worth, broad-minded students, constructive thinkers, and forceful speakers.

Altho Wesley College is a denominational institution (Methodist), the messages of the lecturers have never been sectarian, never narrow. They have all been based on knowledge—the latest results of investigation and scientific research. They have all been given in the finest Christian spirit with the one great thought of seeking and disseminating truth. They have been of inestimable value not only to the student community to which they were particularly address, not only to the people of Grand Forks, the city-home of the college, but to the people of the entire state thru visiting clergymen of all denominations and to other thinking people who after availing themselves of the opportunities offered, have gone back to their respective fields of service and influence with broadened minds, clearer visions, greater sanity of religious thought, more tolerance of religious opinions, and deepened convictions of fundamental religious truths.

For eight successive years the lectureship has been continued. The plan has been, in each case, to select a large general topic embodying some fundamental moral or religious considerations and to discuss it thru a series of lectures, the lecturer remaining in the community for several days. The following is a list of the holders of the lectureship and the general topics discuss. Under the last, that of Dr. Starbuck, for 1914, the subjects of the individual lectures are also given:

1907

Borden P. Bowne, D.D., LL.D.---Religion and Philosophical Ideals

1908

Robert W. Rogers, Ph. D., LL.D.-----The Story of Creation

1909

Robert W. Rogers, Ph.D., LL.D.-----The Story of the Israelites

1910

Francis J. McConnell, Ph.D., D.D.-----Religious Fundamentals

1911

Luther Freeman, D.D.-----Positive Religious Ideas

1912

Harrison Franklin Rall, Ph.D., D.D.-----
-----The Social Significance of Religion

1913

Allen Hoben, Ph.D.-----The Religious Education of Boys

1914

Edwin Diller Starbuck, Ph.D.-----
-----The Psychological Basis of Religious Education

- (1) The Meaning of Childhood
- (2) God and Matter
- (3) A Child-Centered Education
- (4) The Teen Years
- (5) The New World and Its Value
- (6) How to Overcome Temptation

Phi Beta Kappa at University of North Dakota The installation of the North Dakota Alpha Chapter of Phi Beta Kappa will take place at the University June 13, 1914, the installing officer being Professor Edwin A. Grosvenor, LL. D., of Amherst, Massachusetts, the President of the United Chapters.

As is generally understood, membership to this organization is based entirely on scholarship and character. The constitution of the local Chapter provides that not more than one-sixth of any senior class shall be elected to membership.

It is planned, hereafter, to announce the names of the first four members to be elected each year on Founders' Day, February 22.

This year, as the organization was not effected in time to make the announcement on Founders' Day, the election of the first four was announced by President McVey in Convocation May 23, as follows:

Miss Hilda M. Olson	Miss Margaret E. Plank
Mr. George St. John Perrott	Miss Anne E. Poupore

Six additional members from the class will be elected, their names being announced on June 13.

The charter members have also elected members from all the past classes of the University, selecting such as would have been entitled to the honor, had there been a Chapter of the Society at the University at the time of their graduation. The list of the Alumni elected is as follows:

FOUNDATION MEMBERS-ELECT OF THE PHI BETA KAPPA

Acker, Iver A., '10	Grimson, G., '04
Adair, Birdie M., '13	Hancock, John M., '03
Allen, Frances M., '89	Harvey, Gladys M., '13
Anderson, Lawrence J., '13	Haskett, Margaret, '11
Bacon, Will C., '13	(Mrs. M. Anderson)
Baker, Albert C., '97	Hawthorne, Warren C., '95
Batten, Annabel H., '12	Herigstad, Omon B., '08
Bisbee, Marcie, '98	Holt, Blondie A., '12
Bronson, Harrison A., '94	Honett, Alma, '09
Burns, Myrtle E., '11	Houghton, Theodosia, '13
Burtness, Olger B., '06	Howland, Garth A., '12
Christie, Roy E., '11	Hydle, Lars L., '11
Coger, Albert E., '96	Jackson, Bruce E., '06
Cooper, Harry H., '07	Jackson, Tessie, '04
Coulter, John L., '04	Johnson, Edith H., '01
Crans, Emma C., '96	(Mrs. S. G. Skulason)
Crans, Mary B., '90	Johnson, Ellen A., '12
Dean, Cora, '10	Johnson, John B., '13
Dickson, Allie R., '13	Johnson, Nellie S., '01
Flemington, Mary B., '07	(Mrs. S. M. Hydle)
Ford, Don S., '08	Johnson, Sveinbjorn, '06
Fraser, Jean, '10	Johnstone, M. Beatrice, '91
Gilroy, William T., '10	Joslyn, Edna M., '13
Glass, Mattie R., '93	Kingsland, Mary E., '97
(Mrs. F. C. Masseur)	(Mrs. A. C. Baker)
Greenleaf, William H., '11	Kishpaugh, H. Marsden, '10

- Lewis, Jennie B., '11
Lokken, Ole J., '08
Loynes, Hazel B., '09
Lykken, Henry G., '05
McAndrew, Mary F., '02
McDonald, Flora, '99
 (Mrs. G. T. Webb)
McIlraith, Annie L., '12
Marley, Walter J., '91
Matscheck, C. Walter, '12
Matthews, Sadie P., '00
May, Ethel J., '11
Montgomery, John A., '10
Montgomery, Robert H., '09
Neussle, William L., '99
Newlander, Bertha, '05
Oftedal, Sverre, '09
Olson, Beatrice M., '09
Porter, Edward F., '13
Poupore, Ethel M., '11
Putnam, Mrs. Grace B., '06
Rinde, Hamilton, '02
Ruud, Martin B., '06
Rysgaard, Jens M., '03
Sanford, Maude S., '02
 (Mrs. Thomas Devaney)
Selby, John R., '00
Shanley, Helen S., '07
Skulason, Bardi G., '95
Skundberg, Agnes B., '03
 (Mrs. G. L. Elken)
Smith, Cora E., '89
 (Mrs. Judson King)
Smith, Myron W., '90
Strom, Otto C., '06
Tanner, Jesse A., '05
Thorsteinson, Elina, '11
Tingelstad, Sophus, '13
Traynor, Fred J., '03
Trotter, Winnifred B., '10
Turner, Vida M., '08
 (Mrs. John Carkin)
Vorachek, Pauline A., '07
Wenzel, Richard F., '09
Wilcox, Lee L., '04
Wright, Charles B., '98
Wright, Minnie C., '98
Wyant, Maude, '08

COURSES IN ENGINEERING

GIVEN IN THE

Division of Engineering of the University of North Dakota

I. THE COLLEGE OF MINING ENGINEERING:

1. **The Curriculum.** The courses give a broad technical and practical training for those occupations more or less closely associated with mining, metallurgy, milling, coal and gas engineering, cement, clay working, and other allied manufacturing industries.
2. **Degrees.** The four-year course leads to the degree of Bachelor of Science in Mining Engineering and an additional year of graduate work to the professional degree of Engineer of Mines.
3. **Equipment.** The equipment is high grade, including working models for making brick, pottery, and clay products, and for coal testing and treating, gas manufacture, etc.
4. **Experimental Stations.** At Hebron is situated a mining and coal and gas experimental station under the direction of the trustees of the University and the dean of this college. Here practical tests on a commercial scale are carried out.

Address, DEAN E. J. BABCOCK, University, North Dakota

II. COLLEGE OF MECHANICAL AND ELECTRICAL ENGINEERING:

1. **The Curriculum.** Courses are offered leading to the degrees of Bachelor of Science in Mechanical Engineering, and Bachelor of Science in Electrical Engineering. Five-year courses lead to the advanced degrees of Mechanical Engineer and Electrical Engineer.
2. **Equipment.** The shops are well equipped with the latest machines. The mechanical and dynamo laboratories have, among other pieces of apparatus, a fifty horse-power suction gas producer, and gas engine, and two seventy horse-power boilers, each with a different type of furnace, including an automatic stoker. The facilities for offering thoro courses in power engineering and in research work in the utilization of various types of power are ample and of the very best. The recent legislative appropriation of \$17,000.00 for laboratory purposes has enabled the College still further to improve these facilities. For further information address

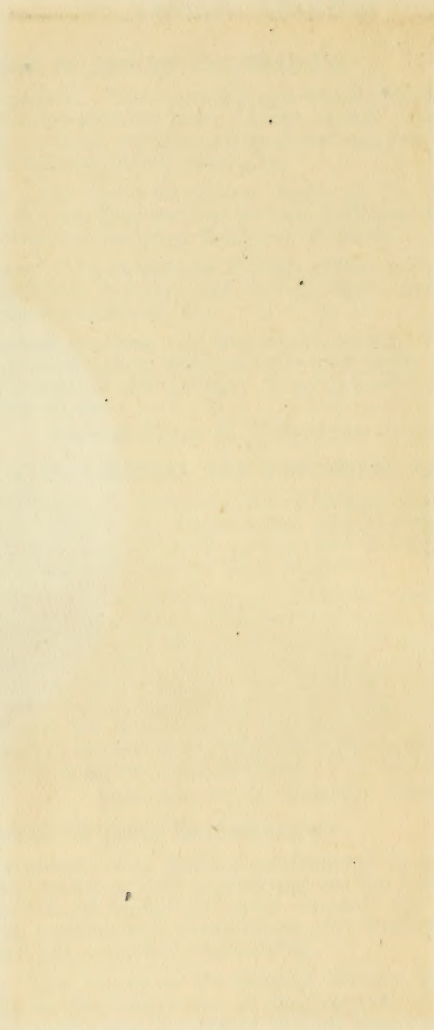
DEAN CALVIN H. CROUCH, University, North Dakota.

III. THE COURSE IN CIVIL ENGINEERING:

1. **The Curriculum.** The distinct professional lines to which attention is given in the course in civil engineering are the following: (1) surveying, (2) mechanics and bridge and truss stresses, (3) concrete construction, (4) railway location and construction, (5) hydraulics and water power, (6) sanitary and municipal engineering.
2. **Degree.** The degree of Bachelor of Science in Civil Engineering is conferred upon the completion of the four-year course. Upon the completion of the fifth year the degree of Civil Engineer is awarded.
3. **Equipment.** The equipment consists of the usual instruments for measuring, testing, etc. Shops and laboratories of all colleges are open to engineering students.

Address, PROFESSOR E. F. CHANDLER, University, North Dakota.

For general information on all engineering courses, address the Registrar, University, North Dakota.



*P
N*

Author Vol. 4, 1913-14

Title University of North Dakota; Qrly Jrnl.

153383

DATE.

University of Toronto
Library

DO NOT
REMOVE
THE
CARD
FROM
THIS
POCKET

Acme Library Card Pocket
Under Pat. "Ref. Index File"
Made by LIBRARY BUREAU

