



Journal of Geography

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/rjog20>

Some Contributions to Laboratory Physiography

Wm. F. Langworthy^a

^a Colgate Academy, Hamilton, N. Y.

Published online: 12 May 2008.

To cite this article: Wm. F. Langworthy (1905) Some Contributions to Laboratory Physiography, Journal of Geography, 4:3, 131-134, DOI: [10.1080/00221340508985584](https://doi.org/10.1080/00221340508985584)

To link to this article: <http://dx.doi.org/10.1080/00221340508985584>

PLEASE SCROLL DOWN FOR ARTICLE

Taylor & Francis makes every effort to ensure the accuracy of all the information (the "Content") contained in the publications on our platform. However, Taylor & Francis, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. Any opinions and views expressed in this publication are the opinions and views of the authors, and are not the views of or endorsed by Taylor & Francis. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Taylor and Francis shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the Content.

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is

expressly forbidden. Terms & Conditions of access and use can be found at
<http://www.tandfonline.com/page/terms-and-conditions>

SOME CONTRIBUTIONS TO LABORATORY PHYSIOGRAPHY *

BY WM. F. LANGWORTHY

Colgate Academy, Hamilton, N. Y.

THE educational world has been slow in recognizing the importance and practicability of laboratory work in Physiography. At last the time seems at hand for its general introduction. Many, and perhaps most, educators will agree that as much attention should be given to laboratory work in this subject as in Physics or Chemistry.

I have been asked to describe two or three exercises which I have planned or have found especially valuable with my classes. I do not feel that I could do this helpfully without some general suggestions as to laboratory work.

In the first place, it seems wisest to use both laboratory and field exercises in connection with a good text-book. The observations in the field make clear many facts otherwise only indistinctly understood, and develop an intelligent interest in nature. Work in the field should proceed side by side with laboratory work.

The laboratory exercises should be distributed as generally as possible over the different parts of the subject. Equipment with topographic maps and all that is necessary to carry on work with them is very easily and economically provided. Probably this fact, as well as the importance of the work itself, will make such work very prominent in any laboratory course. In our own State these maps are coming from the survey with great rapidity and make work on the home map possible in an increasingly large number of localities. I find it a good plan to begin work on maps with a comparison of different ways of showing relief and attempt to bring out as clearly as possible the advantages of the contour map. With the topographic map of our locality before the class, definite questions are put as to scale, contour interval, features shown by brown, black, and blue ink, etc. This is followed by a change of a part of the map to a hachure map. Students find this hard because of a failure to understand hachure maps. One or two profiles are then constructed across our village, taking pains not to exaggerate the vertical scale too much. These profiles cover territory which students go over in the field with map in hand. Various features revealed by profile are then discussed. For instance, the student's attention is called to the fact that the valley in which Hamilton is situated is an open, mature valley. Our profile, however, crosses two branch valleys

* Read before the Earth Science Section, New York State Science Teachers' Association, December, 1904.

which are young and one which is fairly well developed. Another feature emphasized is the rounded summits of the hills, with causes. Other exercises on the home map follow until the student becomes familiar with its details as seen in field and represented on map. The student is then ready for the study of other maps, and this work has been made more easy and tangible.

So much improvement has been made in training pupils in drawing and map making that we find it possible to require much work of this kind. I prefer it to using outline maps already prepared. Of course, these maps lack accuracy of detail as compared with printed outline maps and consume much time in construction, but the knowledge of one doing the work seems to be increased much faster.

The following are some of the exercises which I give my classes after they are fairly well advanced. Each of these exercises requires two fifty-minute periods for its completion. The first is an exercise on the "River Basins and Divides of New York State:"

1. Construct outline map of New York State and trace divides separating St. Lawrence, Hudson, Delaware, Susquehanna, and Mississippi drainage.
2. With crayons color St. Lawrence basin blue, Hudson red, Delaware blue, Susquehanna yellow, and Mississippi red.
3. (a) What is the highest elevation in the State?
(b) Is New York a high upland?
(c) Is the fact of the wide dispersion of its waters unusual?
4. (a) Near what divide do we live?
(b) What is its elevation in our valley?
5. (a) What is the average slope from source of Oriskany Creek to where it empties into the Mohawk?
(b) For whole distance from Bouckville to tide water?
6. (a) What is the average grade in our valley from divide to Binghamton?
(b) From divide to Chesapeake Bay?
7. (a) What is the result of this condition?
(b) Do you see any evidence of this on Morrisville sheet?

The next exercise deals with the "Temperature and Precipitation of New York State."

1. From charts in *Annual Reports of New York State Weather Bureau* and the New York Section of the Climate and Crop Service of the Weather Bureau for the past ten years determine average annual temperature and rainfall at Hamilton. Arrange data in table.

2. Why do isotherms bend to the north in the Hudson Valley?
3. How much lower is the average annual temperature in the Adirondacks than in the St. Lawrence Valley? Account for this.
4. Where is the highest average temperature in the State found? Explain.
5. How does the average rainfall in the Adirondacks compare with that at the east end of Lake Ontario? Explain.
6. In what parts of the State is the heaviest precipitation found? Explain.

The last exercise is a "Study of the Cucamonga, California, Map."

1. Locate Cucamonga map on general map of California.
2. How many square miles of land is covered by it?
3. What is the contour interval?
4. (a) What mountains lie to the north?
(b) What is their elevation and character?
5. (a) What mountains lie to the south?
(b) What is their elevation?
6. What is the length, width, and elevation of this valley?
7. (a) What is the average slope per mile from Cucamonga Peak south for four miles?
(b) What is the slope from foot of mountains south to Cucamonga?
8. Make profile from Cucamonga Peak to Cucamonga.
9. What do you know about the rainfall of this region?
10. How does this find expression in streams from mountains?
11. (a) Are most streams lowering their beds?
(b) How about these?
12. (a) What relation to the mouths of the gorges do the contours have?
(b) How do you explain it?
(c) What do you call such topographic forms?
(d) Notice distributaries.
13. (a) What do you know about the climate of this region?
(b) What alone is needed to make it exceedingly fruitful?
(c) What measures are taken to obtain water for irrigation?
(d) What has become the chief industry?
(e) How valuable is the land?
14. Recapitulate the conditions which make this region especially favorable for the formation of alluvial fans and cones.

In conclusion I wish to say that in secondary schools the laboratory work in Physical Geography should be very simple and elementary. We often underestimate the difficulties of beginners. Our work should be definite. Otherwise discouragement is sure to result. Do not take a pupil into the laboratory, place a map before him and ask him to explain what topographic features are shown. Skillful questioning will bring him to the correct understanding of the problem presented. To illustrate what I mean, be careful to insure a good understanding of the flood plain feature of the Mohawk at Utica and the Mississippi at Donaldsonville, La., before you expect him without the aid of definite questions to discuss those of the Missouri at Marshall, Mo. Do not undertake map excursions, so called, until the student is well advanced. There is an exactness of relations between cause and effect in Chemistry and Physics which is to some extent lacking, or perhaps imperfectly understood, in Physical Geography, and we need to guard against bewilderment by using especial care to guide our pupils by a large number of pointed questions. If this is done, I am sure we will be pleased with their development.

NEWS ITEMS

INTERNATIONAL COMMITTEE ON EDUCATIONAL GEOGRAPHY.—As an outcome of the meetings of the educational section of the Eighth International Geographical Congress held in this country in September, 1904, an international committee has been formed under the leadership of Professor Heinrich Fischer of Berlin to promote the advancement of educational geography. The committee arranged for by Professor Fischer includes, besides the chairman, who will represent Germany, Professor Oldham of Cambridge, England, for the United Kingdom; Professor de Martonne of Nancy, for France, and Professor Dodge of New York city, for the United States. The committee will publish, at least biennially and perhaps annually, accounts of the progress made in educational geography in the different countries represented. These reports will be published in the existing educational journals and should be of much service to all who would keep in touch with the best in geography teaching.

SUMMER WORK IN GEOGRAPHY.—The May number of this Journal will contain the usual annual summary of the summer school opportunities in geography offered in the universities and leading normal schools. The Editor will be glad to receive printed outlines of normal and college courses in geography at an early date.