One of the most important contributions to modern geography study is that made by Professor C. Warren Thornthwaite of the department of geology and geography. It permits the climatic facts of any region to be expressed in standard symbols. Doctor Thornthwaite's twenty-two page contribution to The Geographical Review for October illustrates the painstaking labor of research for it represents the results of five years of intense study.

A revolution in climate calculation

BY PAUL B. SEARS

The most significant climatic facts of a region can now be expressed briefly in standard symbols, thanks to the studies of Assistant Professor C. Warren Thornthwaite of the department of geology and geography of the University of Oklahoma. The results of these studies have just been published by the American Geographical Society in its technical journal, The Geographical Review, for October, 1931. The contribution makes a paper of twenty-two pages, and is entitled "The Climates of North America According to a New Classification." The paper includes a large colored map of this continent showing the climatic subdivisions worked out by Doctor Thornthwaite during the course of five years.

A satisfactory classification of climates has long been desired and frequently attempted. Botanists know that the different types of natural vegetation, such as forests, grasslands, etc., have a climatic basis. Soil scientists now realize that soil development is governed largely by climate, and the geographer has numerous problems in regional differentiation which may involve climate.

But climate is a complex matter, and is influenced by many things. A mere chart of rainfall, or of temperature means very little in relation to the phenomena of plant, animal, or regional geography. For example one might divide the earth into two areas, (1) where the total rainfall is less than twenty inches a year (2) where it is more than twenty. This would be a perfectly definite subdivision, but it would not correspond with any known natural areas and so would have little use.

Professor Thornthwaite has met this difficulty, not merely by reckoning with the seasonal distribution of moisture and temperature, as others have done before him, but by finding a satisfactory way of dealing with evaporation, which students of plant life have long recognized as a matter of the greatest importance. Unfortunately the records of evaporation have been taken at only a few places. One of the first tasks of Professor Thornthwaite was to investigate the mathematical relation between temperature, rainfall, and evaporation, so that, with any two of the three known, he could calculate the remaining one. Armed with this information he was able to supply the approximate evaporation rate at any place where temperature and precipitation records are available. In the course of this part of his work he devised a very ingenious instrument, which is figured in his paper, to assist in making his computations.

Using the information from all available weather bureau stations (of which there are over 4,000 in North America) and from his calculations, Professor Thornthwaite has derived scales which express the effectiveness of moisture and the efficiency of temperature in producing types of climate. On his map these scales are very simply represented by letters.

The climate of Norman, for example, is designated as CB'r, which means sub-humid, warm temperate, moisture adequate at all seasons. Broken Bow is in BB'r—humid, warm temperate, moisture adequate at all seasons—climate, while Guymon is DB'd—semi-arid, warm temperate, rainfall deficient at all seasons.

The scales prepared by Professor Thornthwaite and the resulting subdivisions of the continent appear to be superior to any previously devised in showing climatic areas which correspond to the areas of natural vegetation and animal communities. Such information is of course of the greatest theoretical importance, not only in the study of present climates, but of past climates as well. This latter topic is being very actively pursued in scientific circles at the present time.

Quite apart from its purely scientific application such work is capable of the widest and most far-reaching practical application. Should the time ever come when the utilization of our great continent and the development of human culture upon it becomes matters of intelligent planning instead of costly trial and error, one of the first requisites will be such a map as this. It is perhaps too optimistic to hope that mankind will ever learn much excepting through hard bumps and tragic mistakes. But systems of farm financing, density of rural population, planning of urban water supplies, distribution of the huge grazing and forest industries (which so often work at cross-purposes) could and perhaps should be planned to operate much more effec-

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lative bienniums, this institution would have been much better able to tide over this depression than we will be able to do, under the circumstances.

There is a real danger that confronts the University of Oklahoma, as well as the other educational institutions in this state. For the reasons referred to, there is danger that the University of Oklahoma will get behind the educational procession. Nothing but heroic efforts on the part of the people and a genuine willingness on our part to make many sacrifices can save us from this situation. It is a real peril and every friend of education, who has pride in the reputation of his state, should see to it that Oklahoma does not lag behind in educational progress.

A REVOLUTION IN CLIMATE CALCULATION

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A CHANGE IN RUSH POLICY

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NEW FRONTIERS AND NEW FRONTIERSMEN IN EDUCATION

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takes place. At a certain time all the rushees come to the dean of women's office where they are lined up alphabetically and file by the dean's desk. They are each handed an envelop with their name written on it. Inside this envelop is a card stating that the girl has received a bid to a certain fraternity or regretting that she has not received a bid. This takes very little time if done efficiently and affords privacy to each rushee.

There is no question in my mind that this plan is an improvement over the system that is now being practiced here. But whether it will be the final plan adopted by Panhellenic is a question that no one can answer at the present time. However, it is a step forward in the right direction when the sorority women on the campus agree that the present plan must be changed this year and changed so that the rushing and pledging system will be as modern and progressive as the other projects of the university.

A CHANGING FRONTIERSMEN

This raises another important question. What kind of an education does the new frontiersman demand? How may youth of today secure the wider understanding of their world, develop along the line for which they are best fitted, and learn how to think, evaluate, and judge intelligently before embarking upon lines of action? The kind of education that prevails today will not, for the most part, equip boys and girls for the challenge of tomorrow. Education of today belongs to the age of the old frontiersman. True, we have made many changes in the vehicles of education but we have not changed our point of view in education. We are still teaching boys and girls about the past. The remarks of a high school girl in history indicates this fact. During the history class discussion, she very aptly remarked that she was tired of studying dead people and that she would like to study about some live ones. Then again, education of today gives very little attention to pupil thinking, evaluation, and judging. Teachers do this for the pupils. The most outstanding defect perhaps is the utter disregard to individual differences in the aptitudes of young people. Schools are doing very little in helping young people find their aptitudes and secure an education along that line. They still require all students to go through the same mould. We must change our whole point of view in education if we are to equip young people to grapple with the problems of tomorrow.

At the very outset, we must recognize that the fact that no two boys are alike any more than any two blades of grass. They differ widely in physical and mental traits. Individual differences is a fact. Some boys are born with aptitude to engage in farming or some are born with aptitudes to engage in scientific investigations. Young people are born with different aptitudes and every boy and girl is born with an aptitude to do something. They simply do not come into this world as useless beings.

The first objective of the school should be to help boys and girls to discover their aptitudes—the things they can do with joy. This demands that opportunities must be provided for young people to try themselves out in a great variety of occupations, for the purpose of discovering what they can do with joy. This work must begin in the elementary school and extend at least through the high school for it takes time to discover the real aptitudes of youth.

The second objective of the school should be to provide an opportunity for young people to develop along the lines of their aptitudes, and also, at the same time, provide an opportunity for them to understand any line of work in its bearing on the world at large. Opportunity must be provided for youth to study the beautiful in art, in music, in nature and in literature, as a means of spending their leisure time fruitfully. This is vocational education, plus