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A HAND BOOK OF MAP DRAWING

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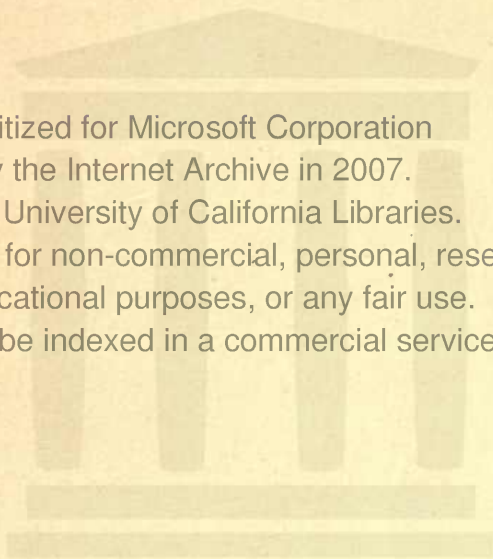
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A
HAND-BOOK
OF
MAP DRAWING

ADAPTED ESPECIALLY TO THE MAPS IN

Mitchell's New Series of School Geographies.

BY
PETER KEAM AND JOHN MICKLEBOROUGH,

TEACHERS IN THE PUBLIC SCHOOLS OF CINCINNATI.

PHILADELPHIA:
PUBLISHED BY E. H. BUTLER & CO.

829799

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P R E F A C E.

IN presenting to the public a new work on the subject of Geography, the authors claim for it nothing more than its name implies, viz.: that it is a Hand-Book of Map-Drawing.

It is not intended to supersede the text-books of political and descriptive Geography now in use, but to accompany them, as a means of fixing more indelibly in the memory the facts therein contained.

The most effective mode of presenting a subject is through the sense of sight; and when a child has once sketched for himself the outlines of a country, drawn in the mountain-chains, traced the water-systems, and located the principal cities, he will have received more lasting impressions of its geographical features than could be obtained in any other way.

The necessities of the school-room demand a method of presenting the subject of Geography in a manner more natural and philosophical than has heretofore been adopted, yet so simple as to be within the comprehension of any pupil of ordinary capacity. We have endeavored in the present work to unite system with simplicity; and after two years' experience in teaching Geography upon the principle herein laid down, we have no hesitation in recommending it to instructors as a work tending materially to lessen their labors, and greatly to facilitate the progress of their pupils in the study of Geography.

One advantage claimed for the work is that the grouping of the States and countries has been based upon the principle of climate and productions, so that when a scholar has learned what is true of one State or country, he may readily infer what is true in a great many respects of all the other States or countries contained in that group.

The work is specially adapted to be used in connection with Mitchell's New Series of Geographies, the figures having been constructed in accordance with his scale of maps.

If the work should tend in any degree to promote a more general interest in the subject of Geography, by making it more attractive to the scholar and more satisfactory to the teacher, our object will have been attained.

CINCINNATI, June, 1869.

After the pupils can draw a correct outline, either on paper or slate, the map may be completed; and, in doing so, the natural order should be followed: first the mountains, then the water-systems (lakes and rivers), then the cities and towns, &c. &c.

By this means an indelible image of the map will be formed in the minds of the scholars, with an exactness of knowledge as to boundaries, mountain-chains, the rise and directions of rivers, location of cities, &c., which could be acquired in no other way.

When the pupils have become familiar with the outline of the map, it is better to dispense with the lines of the figure, indicating it merely by points, inasmuch as heavy lines to a certain extent mar the beauty of the drawing. Thus, instead of actually drawing the lines of a square, it answers equally well to indicate it by four points, allowing the pupil to imagine that the lines extend from point to point.

The letters employed in the construction of the figures serve to simplify the explanation, but are not intended to be used before a class, where the verbal explanation of the teacher will supersede the necessity of lettering.

While the map thus drawn is before the class, the teacher should endeavor to awaken an interest in the subject, and call forth the reasoning faculties of the scholars, by directing their attention to certain results which naturally follow certain physical conditions; such, for example, as the course of rivers following the general slope of the country; the influence of navigable rivers upon internal commerce; the effect of high mountain-chains, and of distance inland, together with that of distance from the equator, upon climate.

In a similar manner the judicious teacher will be able to draw out from the class certain facts concerning the nature of the soil and the kind of productions, as well as the general character of the cities, from their location.

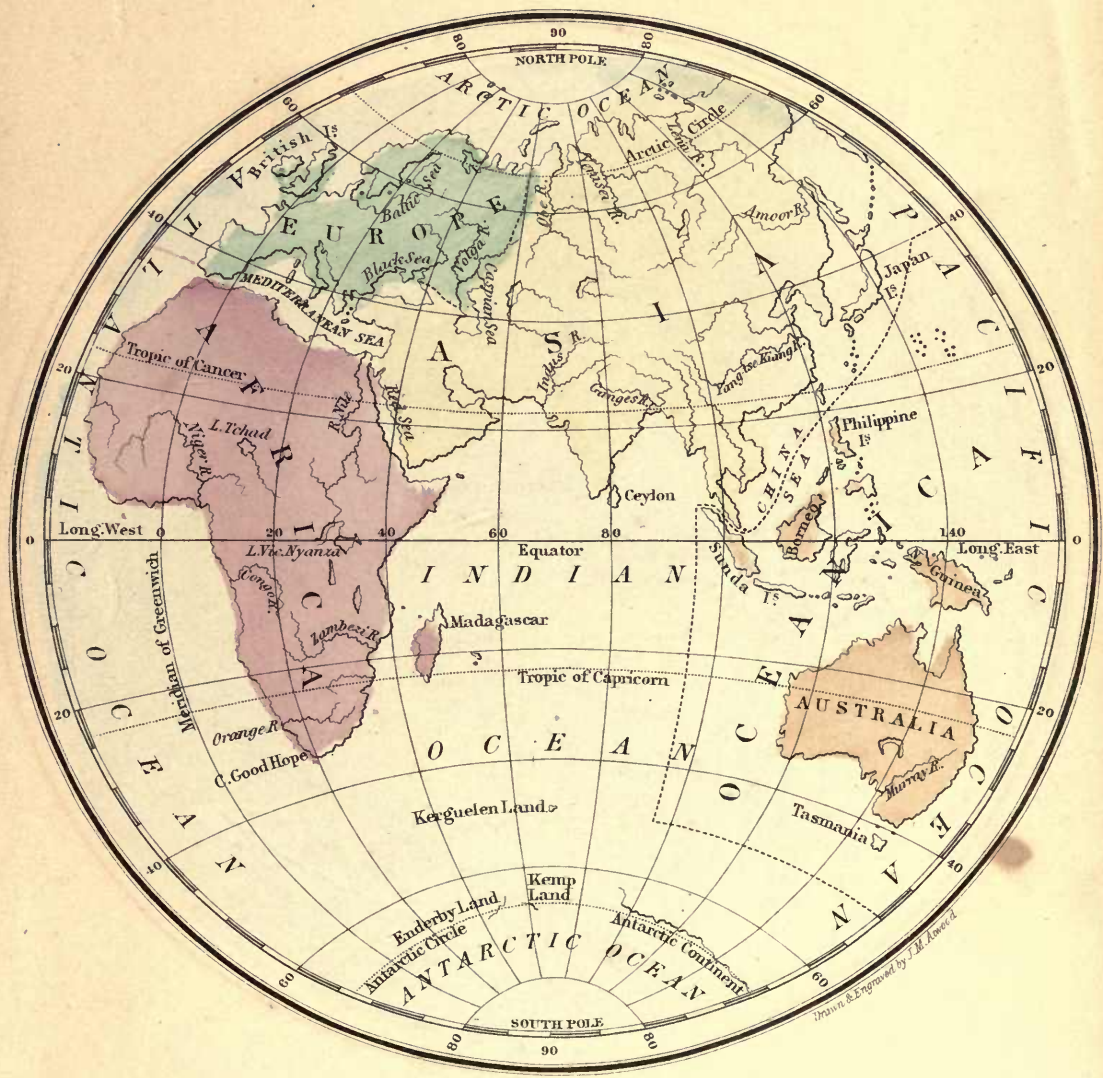
In this way there is a constant appeal to the highest power of the mind—reason; and the subsequent labor of memorizing the lessons from their regular text-books will be rendered comparatively easy to the learners.

Nº 1 MAP OF THE



WESTERN HEMISPHERE.

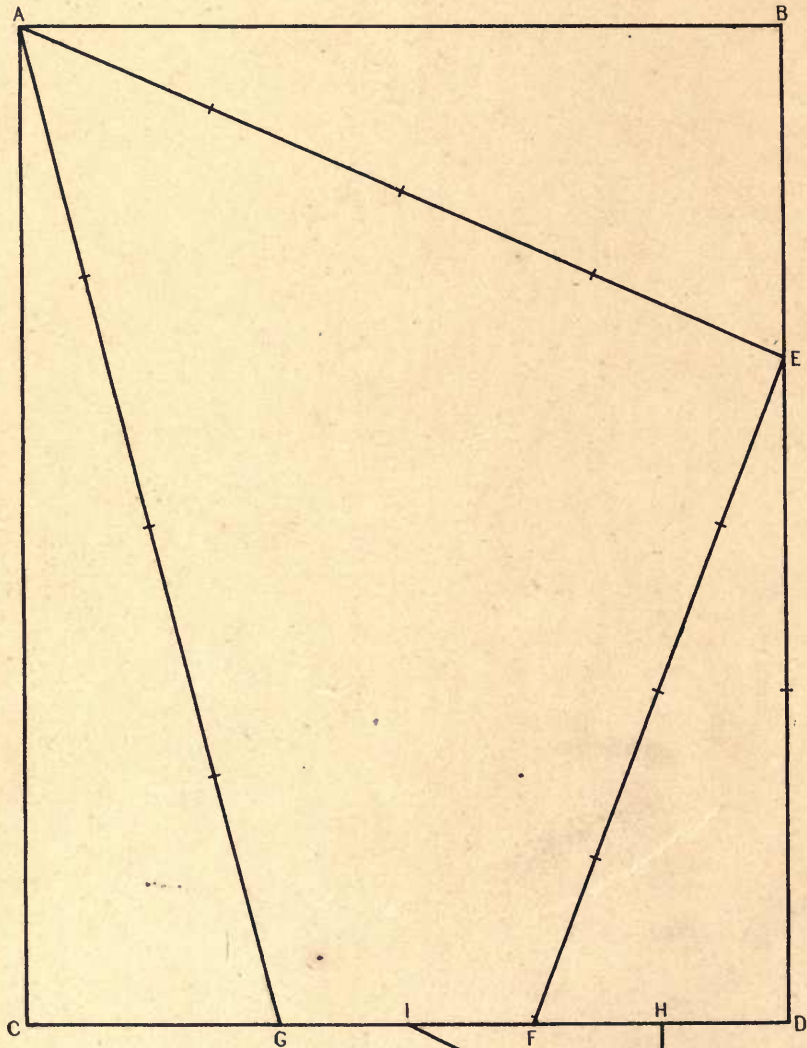
Nº II MAP OF THE



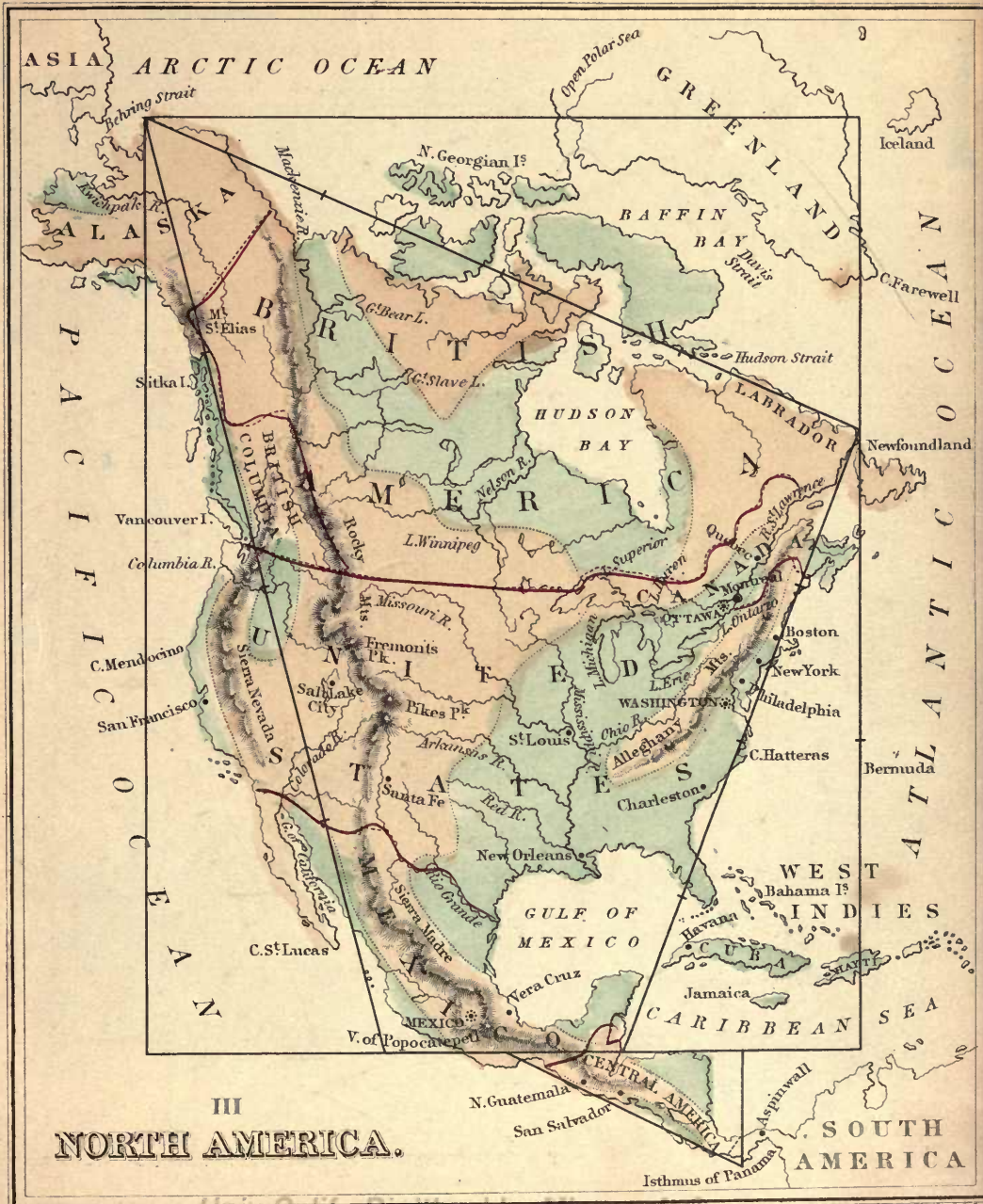
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EASTERN HEMISPHERE.

FIGURE FOR NORTH AMERICA.



Construct a rectangle in the proportion of 3 to 4. Trisect the base and eastern side. Join AE, EF and AG, and divide each into four equal parts. Bisect GF and FD, and from H draw HN equal to HD; and join IN.



III
NORTH AMERICA.

QUESTIONS.

- What is the position of the United States ?
 Where are its principal highlands ?
 What is their general direction ?
 Describe the plateaus.
 Describe the lowlands.
 What lakes on the border, or in the interior ?
 From the nature of the surface, what would naturally be the general direction of the rivers ?
 Which rivers afford good water power ?
 Which are navigable, so as to be of great value for domestic commerce ?
 What is the climate of the southern part of the country ?
 Of the central portion ?
 Of the northern part ?
 How does elevation affect climate ?
 How does proximity to the sea affect climate ?
 What are the principal productions of the southern portion of the country ?
 Of the central portion ?
 Of the northern portion ?
 Name and locate the principal commercial cities.
 What natural causes have contributed to their prosperity ?
 Name and locate the leading manufacturing cities.
 Name and locate the great agricultural marts.



IV

OF THE UNITED STATES.



102 97 Longitude West 92 from Greenwich 87 82 77

Drawn & Engraved by J.M. Atwood Philadelphia

States and
Territorial Regions.



DESCRIPTIVE LESSON

ON THE

UNITED STATES OF AMERICA.

THE United States is situated in the central part of the grand division of North America, and forms the great southern slope to the Gulf of Mexico.

In the eastern part of the country is the Appalachian mountain-system, stretching from the river St. Lawrence to within a few miles of the Gulf. From this system extend two great slopes of land, the one towards the Atlantic Ocean and the other towards the valley of the Mississippi.

On the western side of the country are two great mountain-systems, the Rocky and the Pacific. Between these two ranges is the "Great Western Plateau," about 500 miles wide, and a little over 4000 feet above the level of the sea. The central part of this plateau is called the "Great Interior Basin." This section contains a few fertile tracts of land, but in general the whole plateau is sterile.

East of the Rocky Mountains lies a barren region parallel with the mountain-chain from north to south, and having a width in some places of about 300 miles. It is almost totally devoid of moisture, and consequently of vegetation. Between this region and the Alleghany Mountains lies the largest and most fertile valley in the world. It forms the southern part of the "Great Central Plain" of North America. It has been estimated that this valley is capable of sustaining 250 millions of people, or more than six times as many as are now in the whole of the United States.

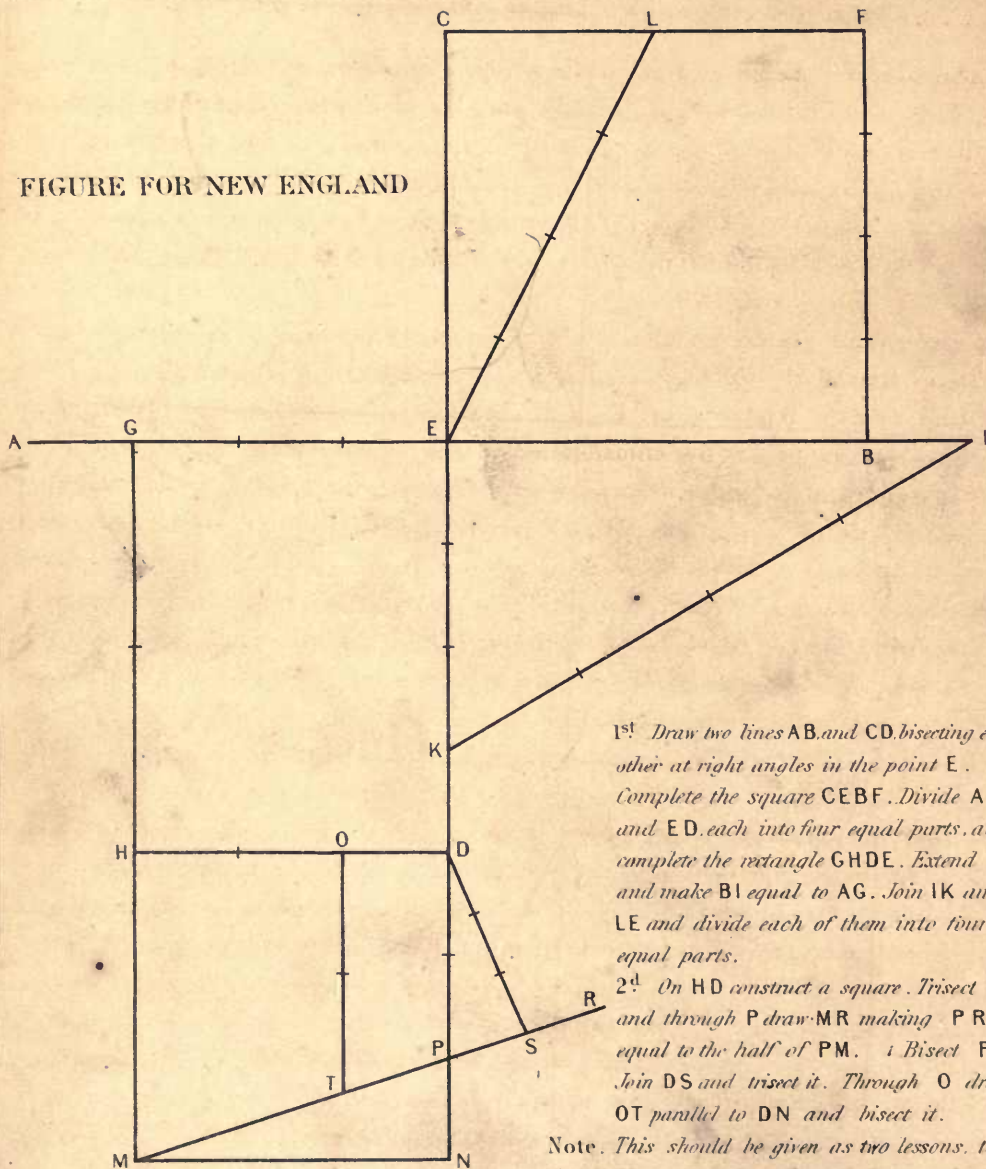
The mountain-ranges in the western part of the country are rich in gold, silver, and quicksilver, while the Appalachian range is noted for its coal and iron. Copper, lead, and iron are found in large quantities in the northern ridge between the Mississippi and Saskatchewan valleys.

The general direction and slope of the mountains determine in a great measure the course of the rivers, which may be classified under three divisions,—viz.: those that flow in a southeasterly direction, down the Atlantic slope; those that flow down from the slopes of the Appalachians and the Rocky Mountains, uniting to form the Mississippi River, which is one of the largest in the world; and the two great rivers west of the Rocky Mountains, which flow in nearly opposite directions from the centre of the Great Interior Basin to the Pacific Ocean.

From the central position of the United States on the continent, it is subject neither to the intense heat of the Torrid Zone nor to the extreme cold of the Frigid Zone. It may be said to have three distinct belts of climate, and consequently of productions. South of the parallel of 35° the climate is warm and moist, and the general productions are cotton, sugar, rice, and tropical fruits. Between the parallels of 35° and 40° the climate is mild, healthy, and pleasant, and the productions are principally corn, tobacco, and grapes; while the immense and well-watered plains afford great facilities for the raising of cattle. North of the parallel of 40° the climate is somewhat colder, and is favorable to the production of the different kinds of grain, such as wheat, barley, oats, &c. But, in consequence of the great difference in the elevation of the country, these grains will grow much farther south in some States than in others.

The position of the great cities has been largely determined by certain natural causes. These are the water-powers afforded by the numerous streams, the proximity of rich agricultural districts and extensive mineral wealth, and the course of the great highways of commerce, either foreign or domestic. While some of the cities depend upon several of these influences combined, New York, New Orleans, and San Francisco depend particularly upon foreign and domestic commerce; Lowell, Manchester, Worcester, Hartford, Rochester, and other manufacturing towns, have grown up on the rivers affording excellent water-power; while Philadelphia and Pittsburg, in addition to their water-power and facilities for commerce, have acquired great importance as manufacturing cities from their proximity to the rich coal and iron regions. Cincinnati, Chicago, and St. Louis are surrounded by great agricultural districts, and have become the principal Western emporiums of domestic trade.

FIGURE FOR NEW ENGLAND



1st Draw two lines AB and CD bisecting each other at right angles in the point E . Complete the square $CEBF$. Divide AE and ED each into four equal parts, and complete the rectangle $GHDE$. Extend EB and make BI equal to AG . Join IK and LE and divide each of them into four equal parts.

2^d On HD construct a square. Trisect DN and through P draw MR making PR equal to the half of PM . Bisect PR . Join DS and trisect it. Through O draw OT parallel to DN and bisect it.

Note. This should be given us two lessons, the first part constituting one lesson; the second part the other, but may be united in reviewing.

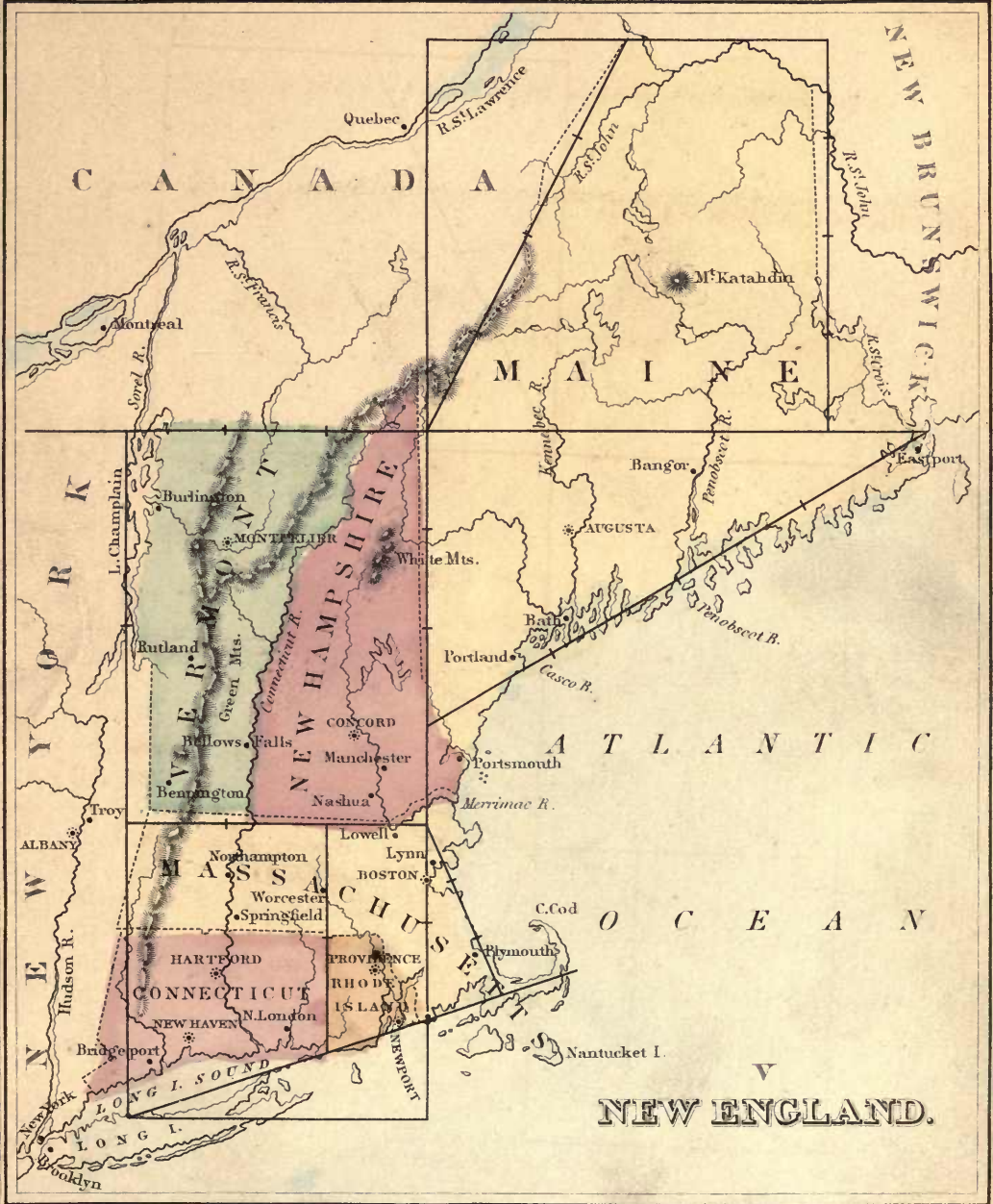
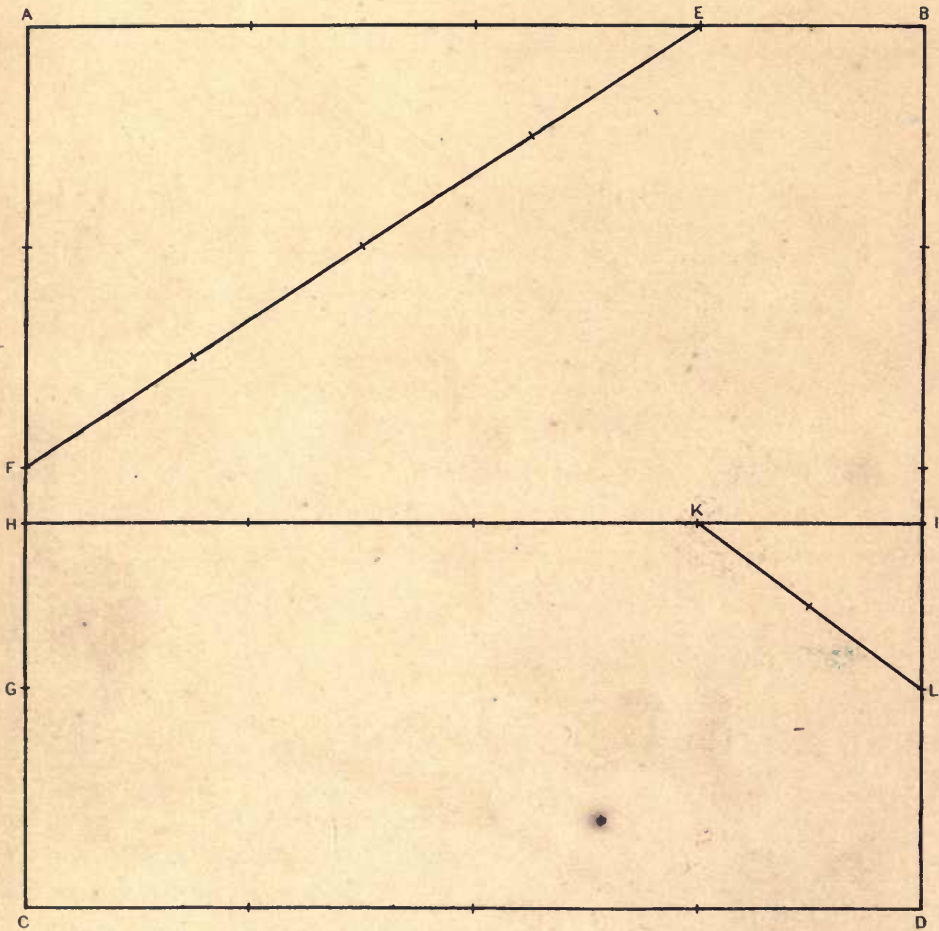


FIGURE FOR NEW YORK, PENNSYLVANIA & NEW JERSEY.



Construct a square and divide each side into four equal parts. Join EF and divide it into four equal parts. Through H, the fourth of FG, draw HI parallel to CD, and divide it into four equal parts. Join KL and bisect it.

VI NEW YORK, PENNSYLVANIA & NEW JERSEY.

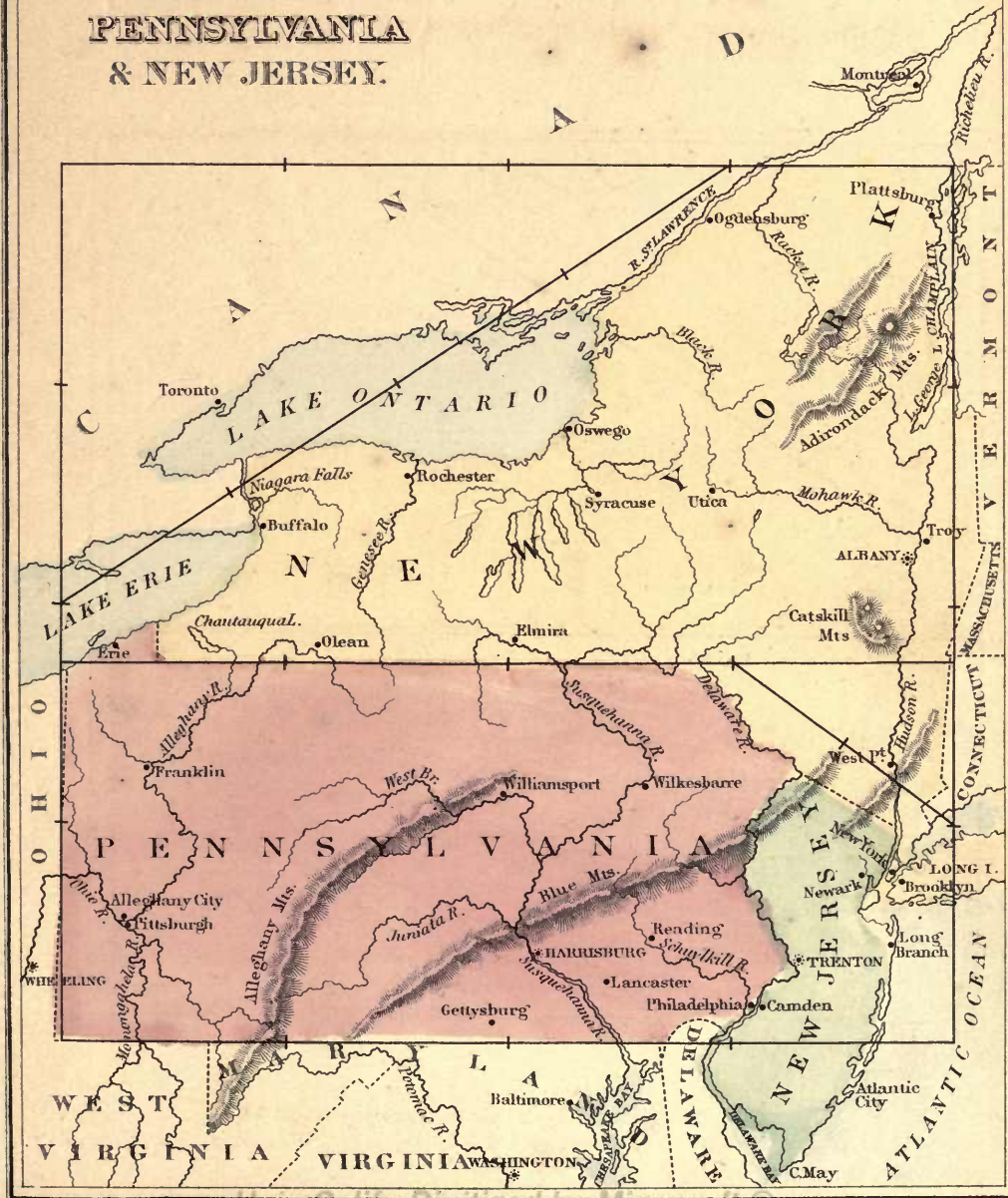
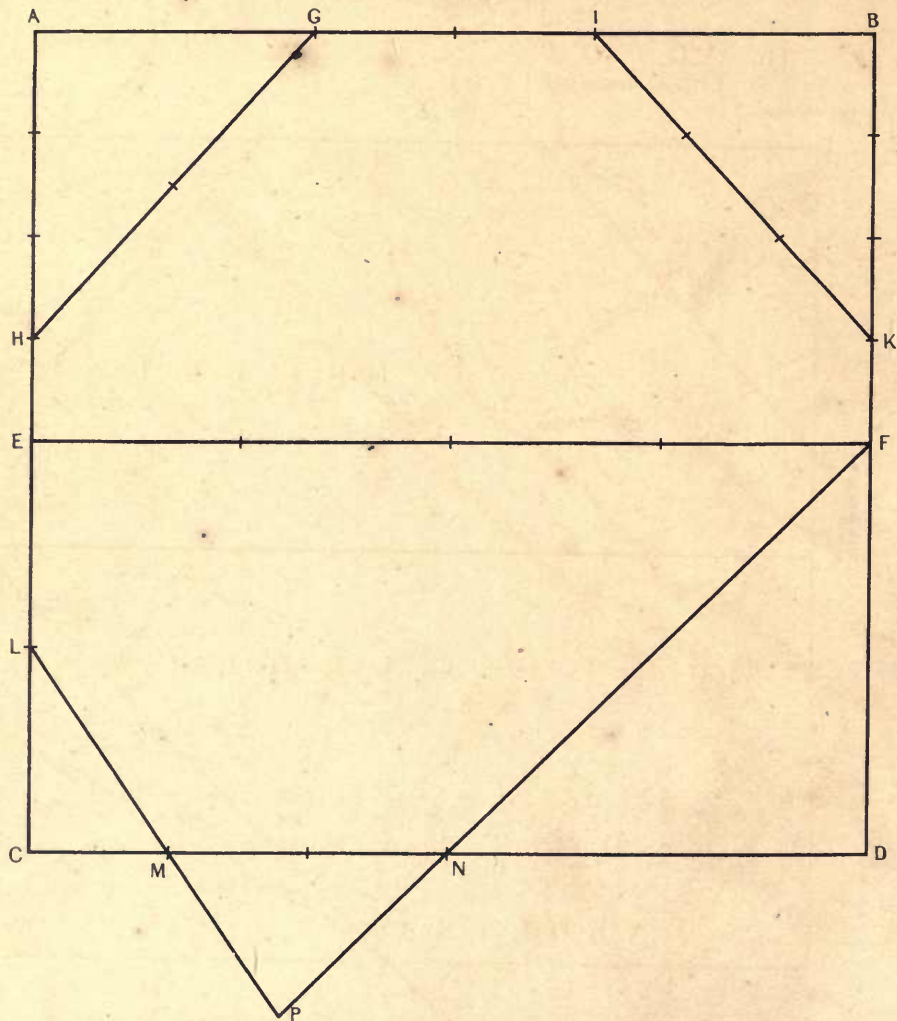


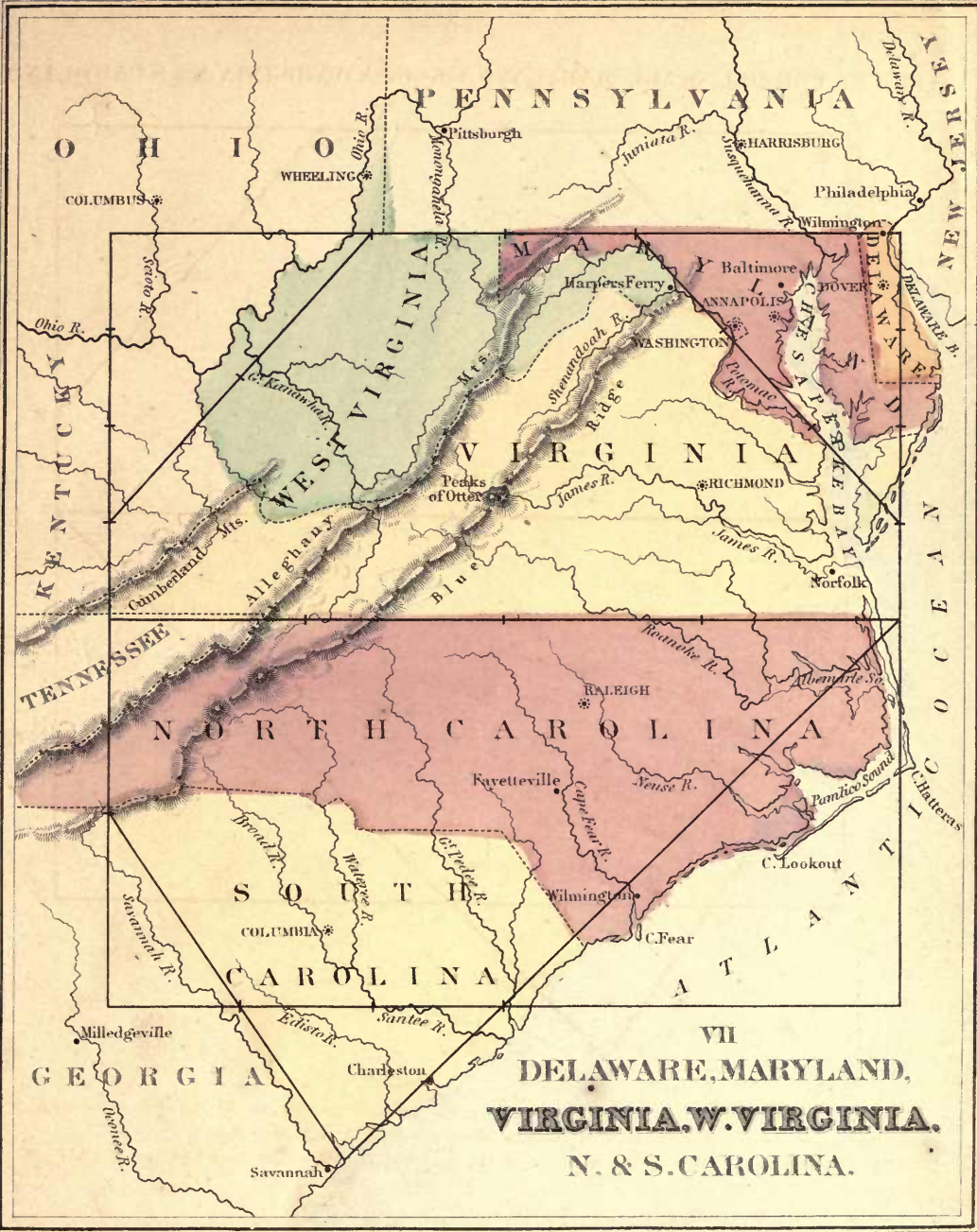
FIGURE FOR DELAWARE, MARYLAND, VIRGINIA, W. VIRGINIA, N. & S. CAROLINA.



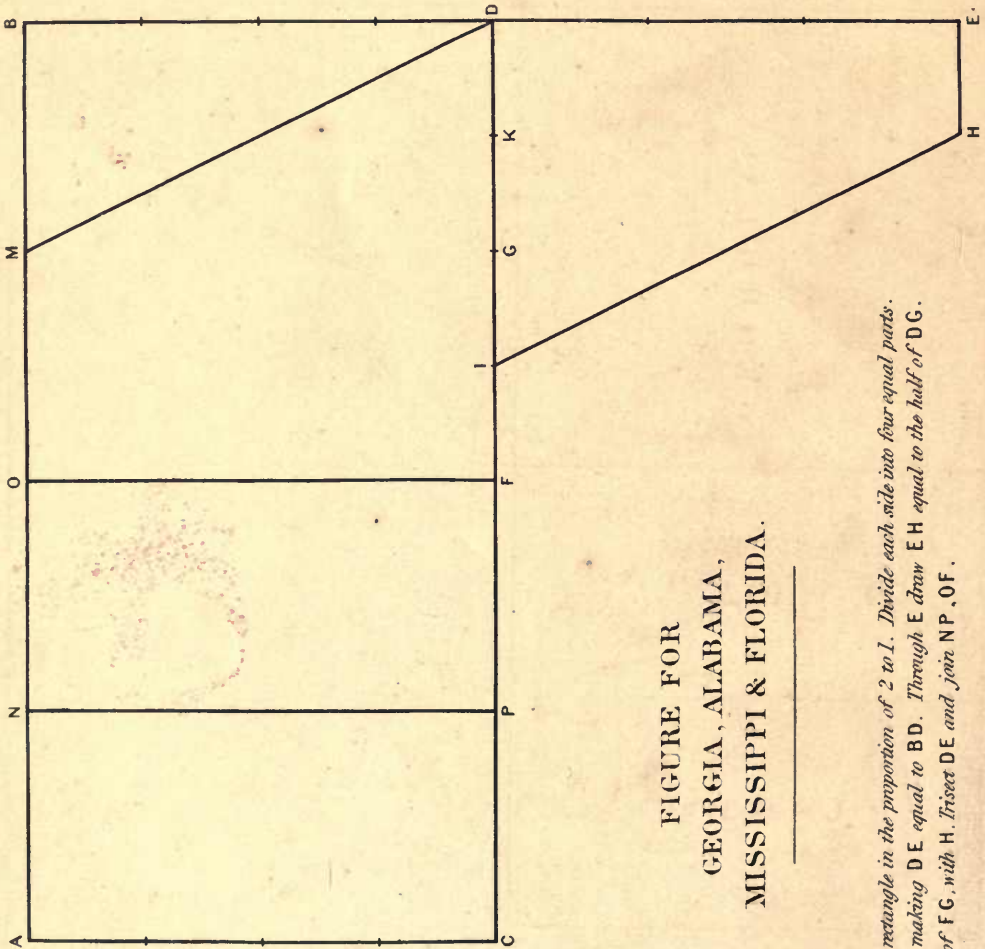
1st Construct a square, and bisect it with the line EF. Divide the lines AE, EF, FB each into four equal parts. Trisect AB, and join GH, IK, and bisect the middle section of AB.

2^d. Bisect CD, and CE. Join FN and extend it indefinitely. Trisect CN, and through M draw LP meeting the line FN produced.

Note. This is intended to be used as two lessons.

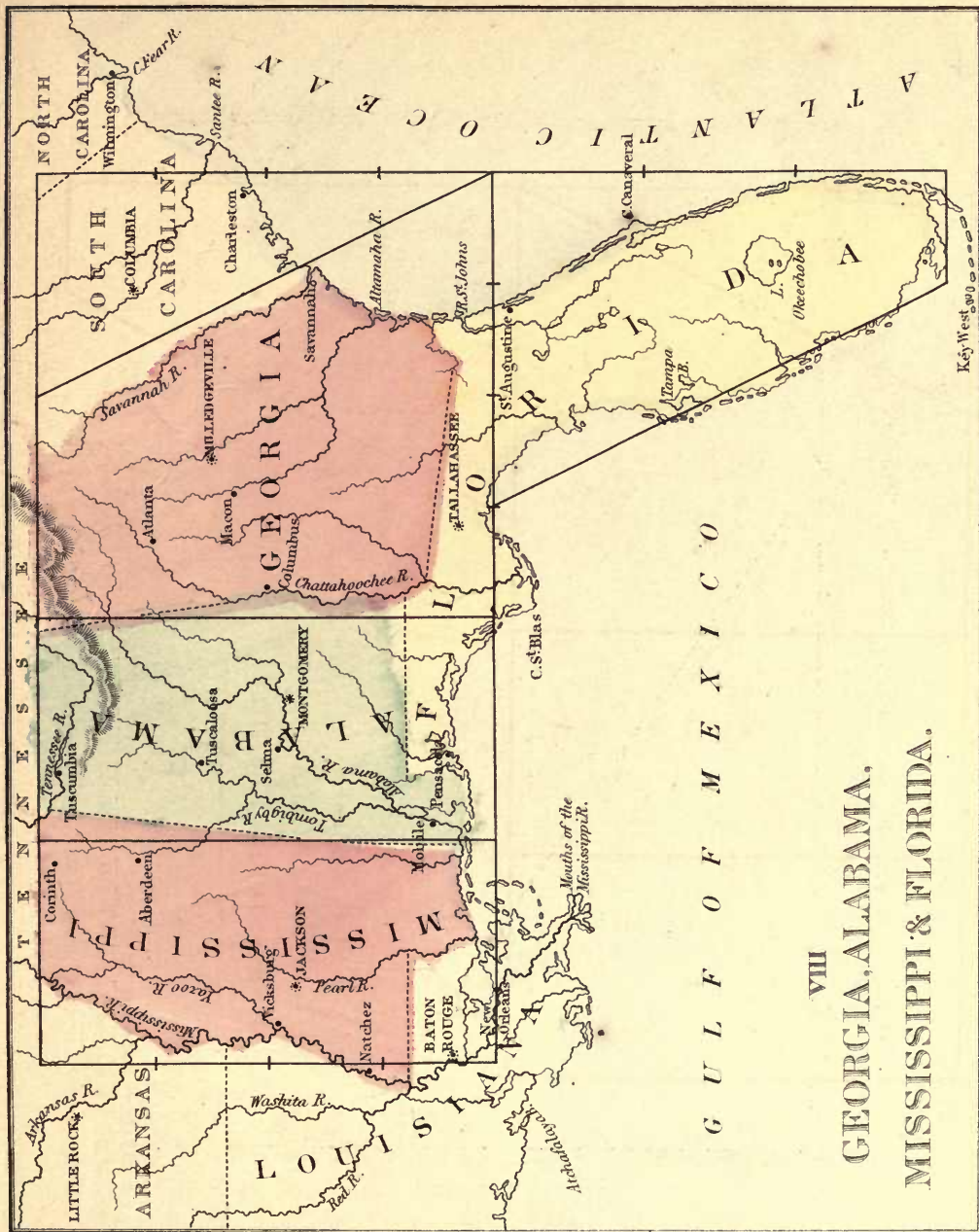


VII
 DELAWARE, MARYLAND,
VIRGINIA, W. VIRGINIA.
 N. & S. CAROLINA.



**FIGURE FOR
GEORGIA, ALABAMA,
MISSISSIPPI & FLORIDA.**

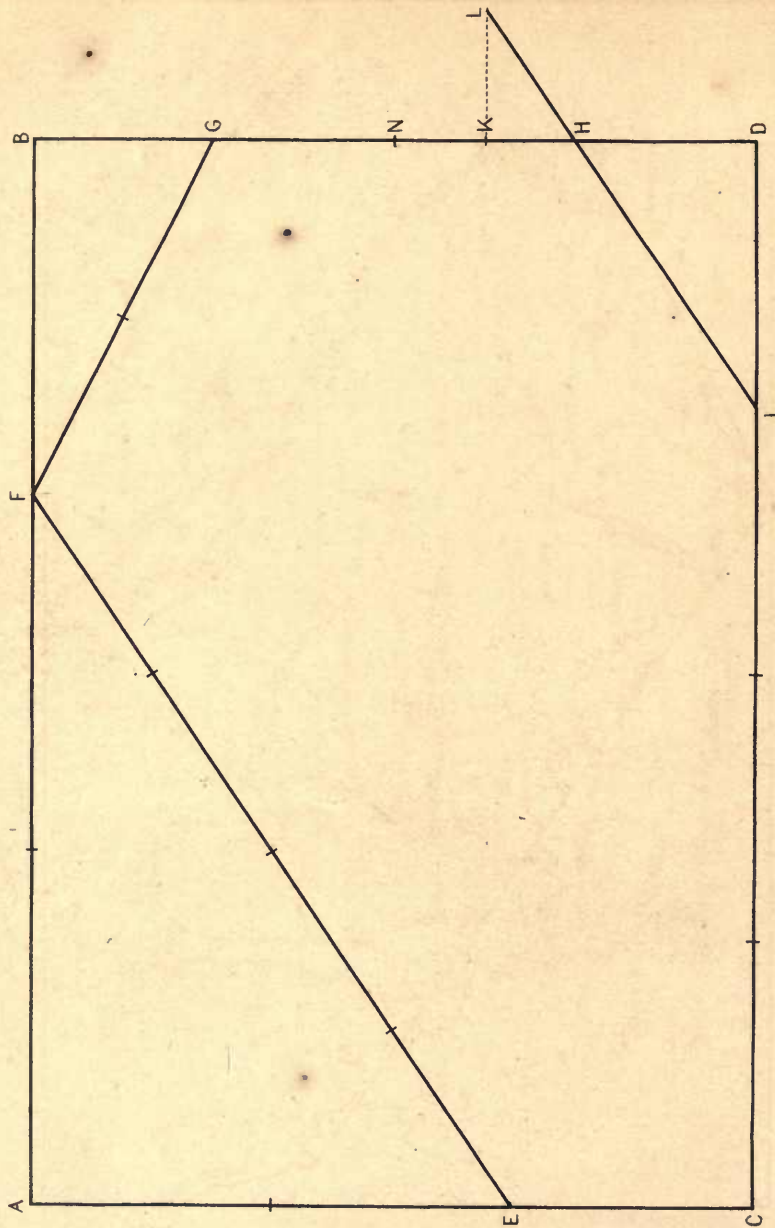
Construct a rectangle in the proportion of 2 to 1. Divide each side into four equal parts. Extend BD to E making DE equal to BD. Through E draw EH equal to the half of DG. Join I, the half of FG, with H. Trisect DE and join NP, OF.



Map prepared by J. Edwards Whitehead

Key West 90° 00'

FIGURE FOR KENTUCKY & TENNESSEE.



Construct a rectangle in the proportion of 3 to 2. Divide the northern and western sides into three equal parts, and the southern and eastern sides into four equal parts. Join EF, and FG, and IH. Extend IH and let it meet the line passing through K. (HN, bisected) Divide EF into four equal parts, and bisect FG.

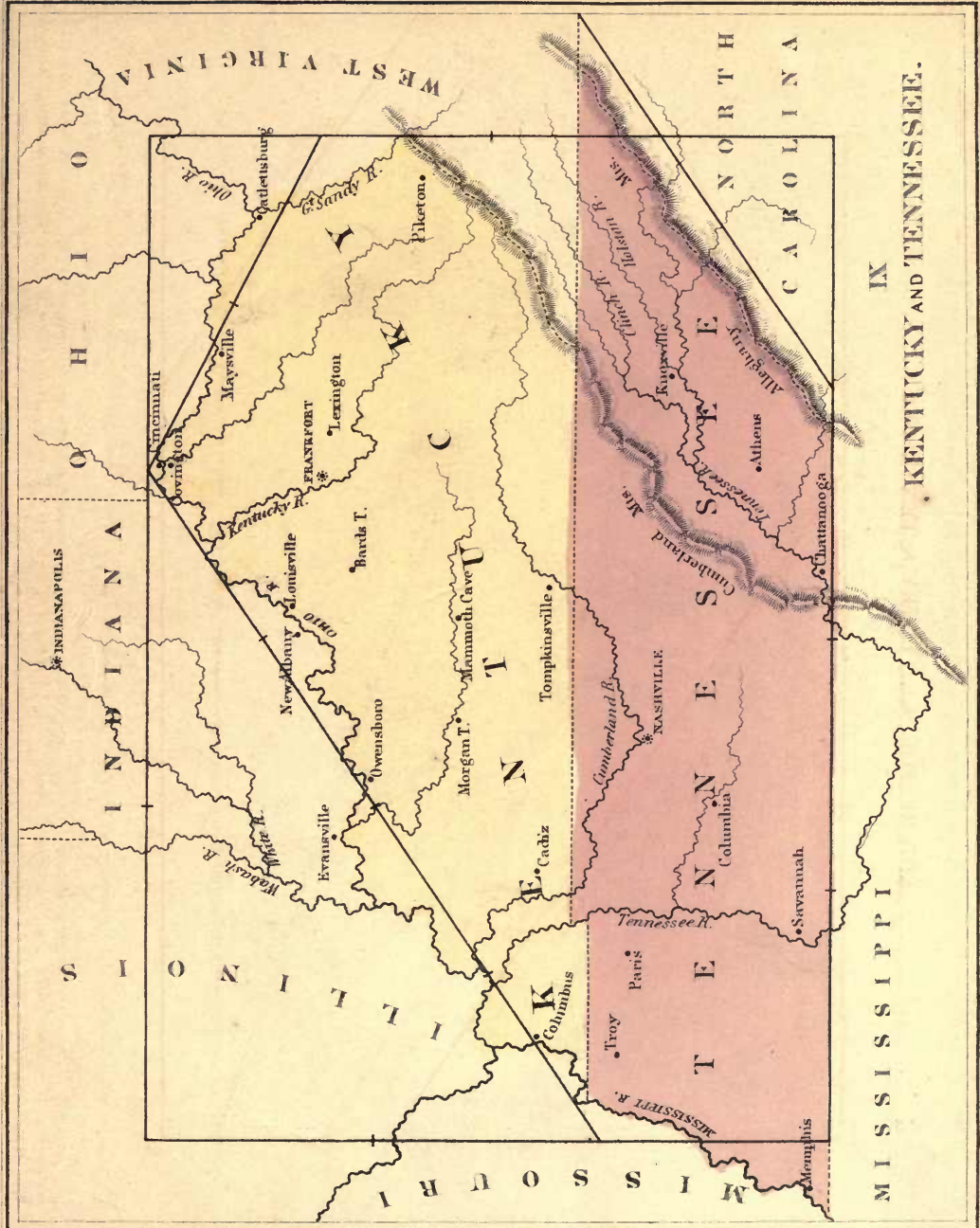
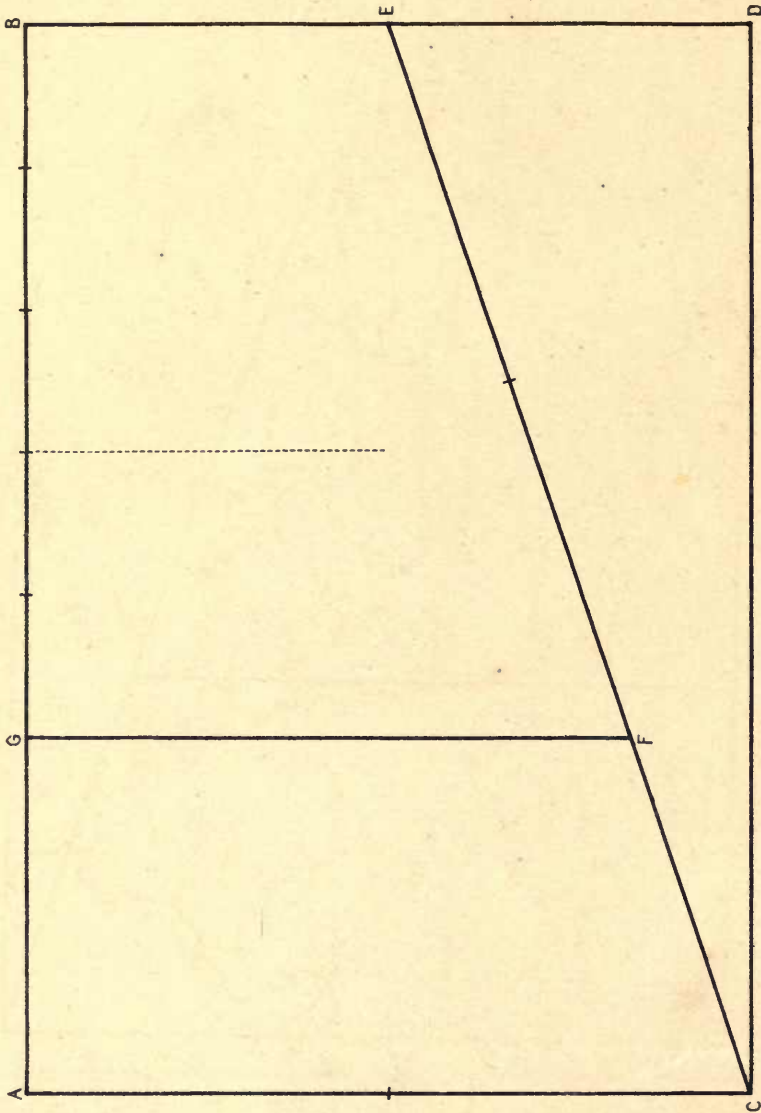


FIGURE FOR OHIO, INDIANA & ILLINOIS.



Construct a rectangle in the proportion of 3 to 2. Bisect BD, and AC. Join CE, and divide it into three equal parts. Through F, draw FG parallel to the side AC. Divide GB into five equal parts. Note. The boundary line between Indiana and Ohio should be first dotted down opposite the point E. This will give a fixed point for the north bend of the Ohio River.

Drawn & Engraved by C. M. Howard, Philadelphia.

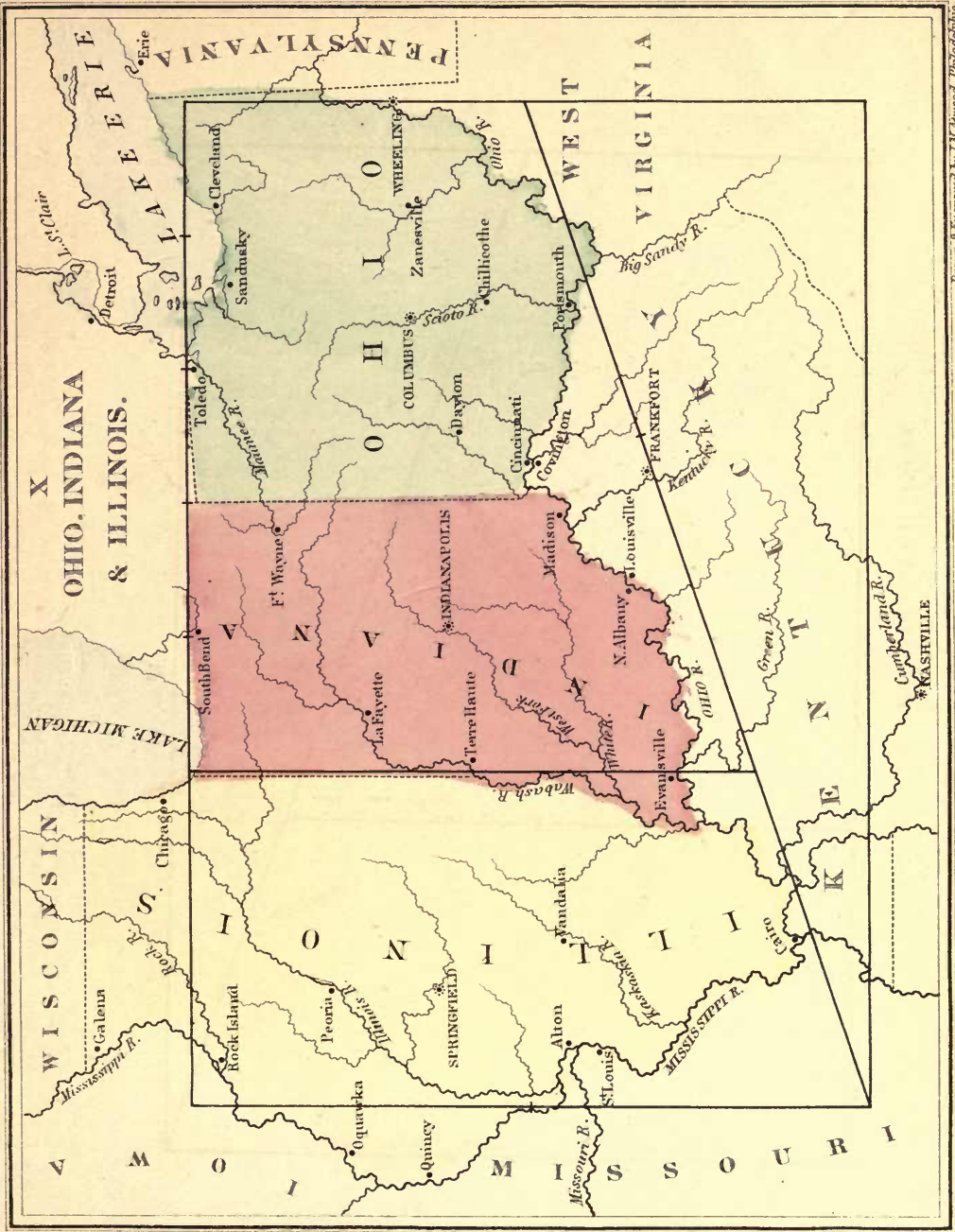
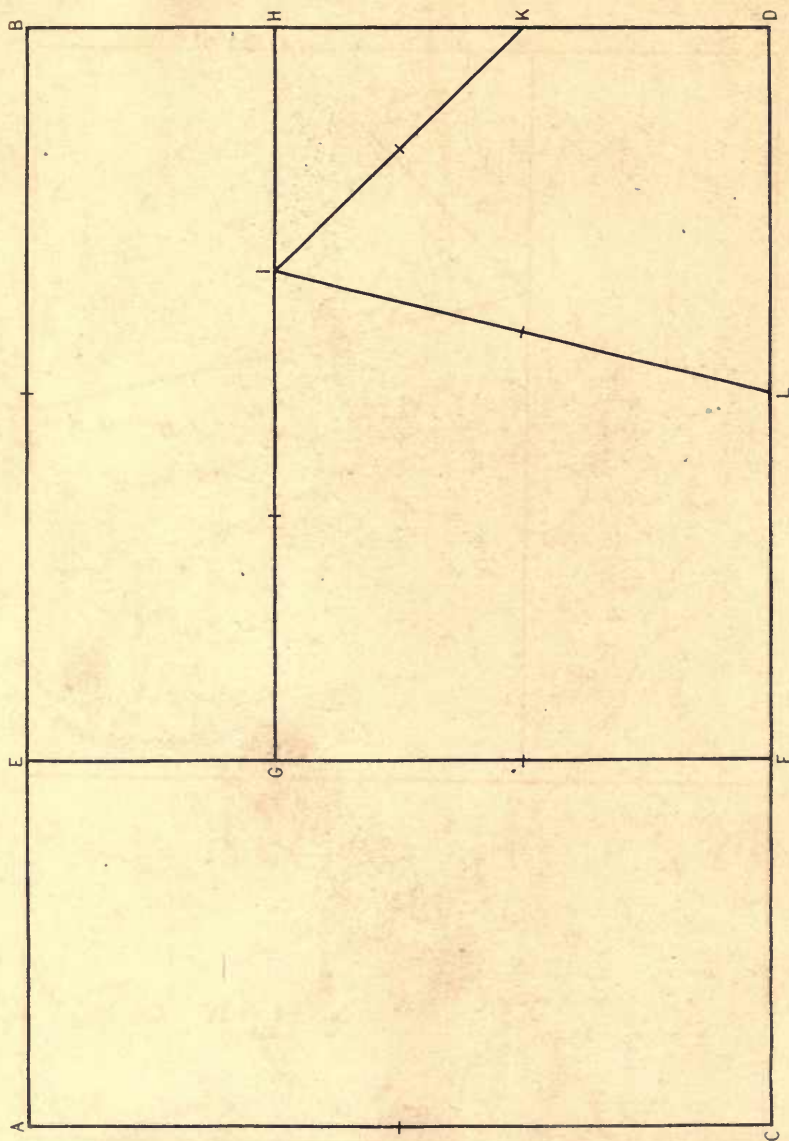


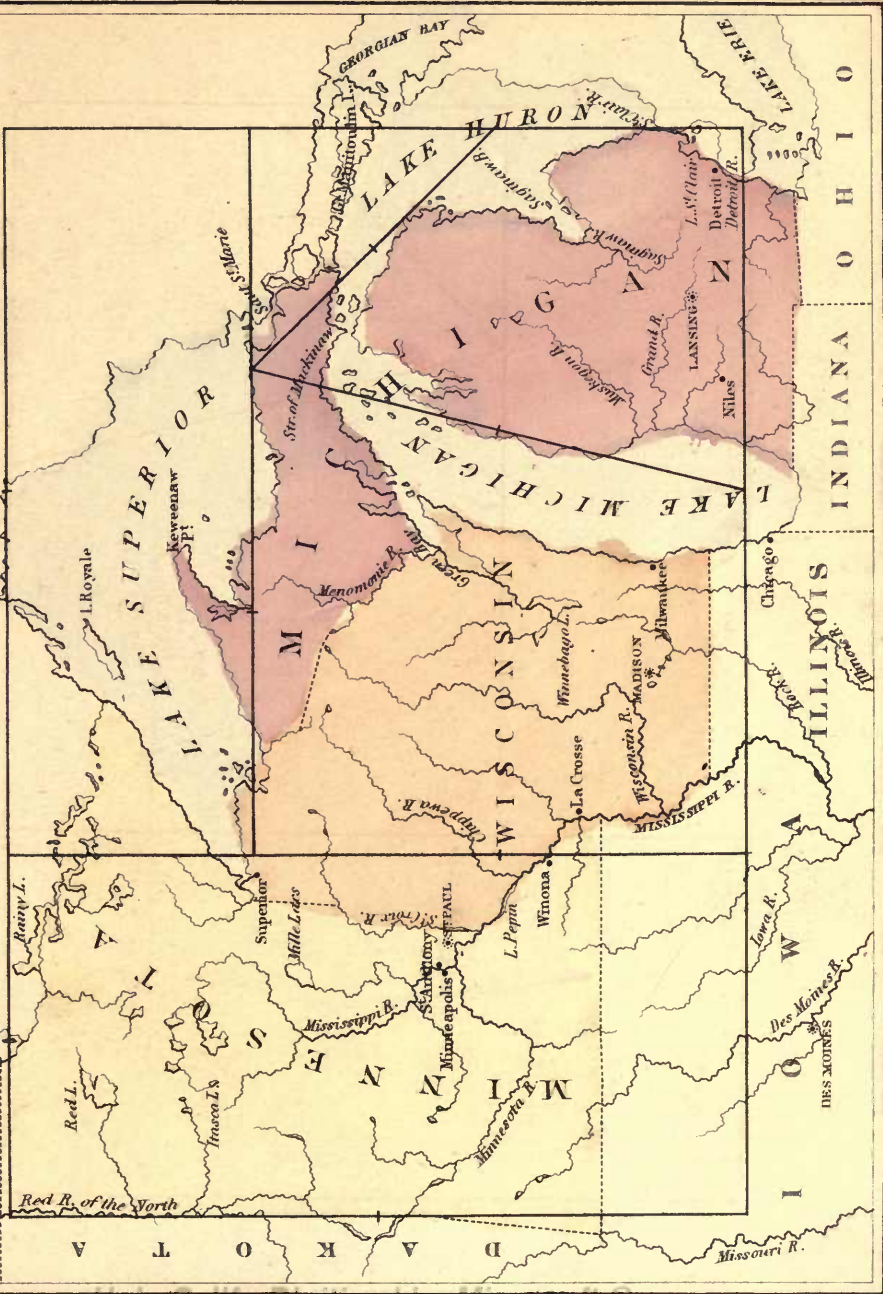
FIGURE FOR MICHIGAN, WISCONSIN & MINNESOTA.



Construct a rectangle in the proportion of 3 to 2. Bisect AC, and trisect each of the other sides. Join EF and trisect it. Join GH, trisect it. Join KL and LL, and bisect each of them.

XI
MICHIGAN, WISCONSIN
& MINNESOTA.

B R I T I S H A M E R I C A



D A K O T A

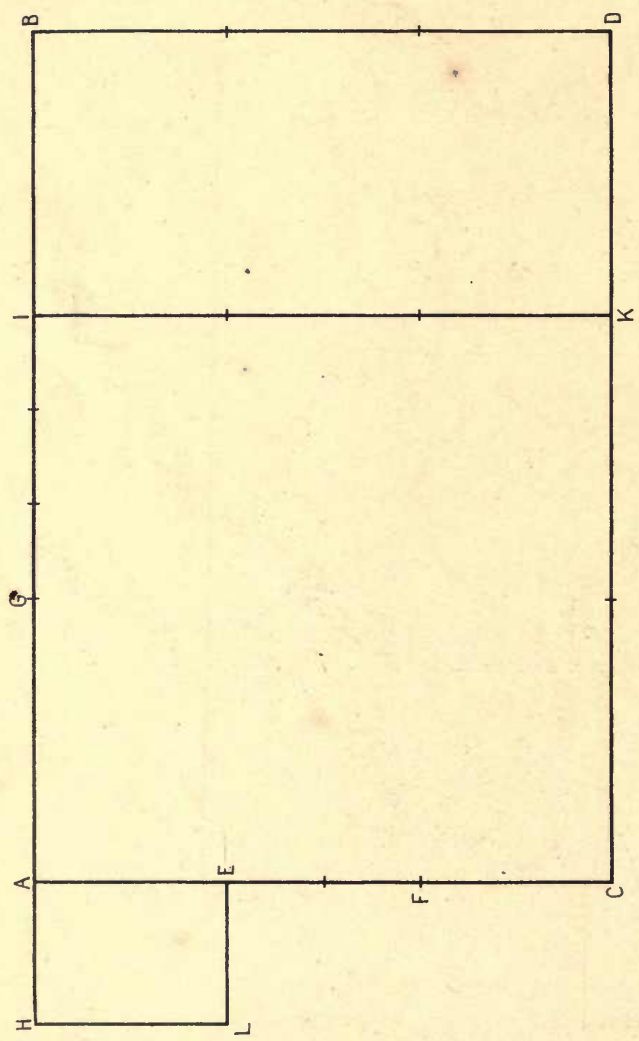
I N D I A N A O H I O

I L L I N O I S

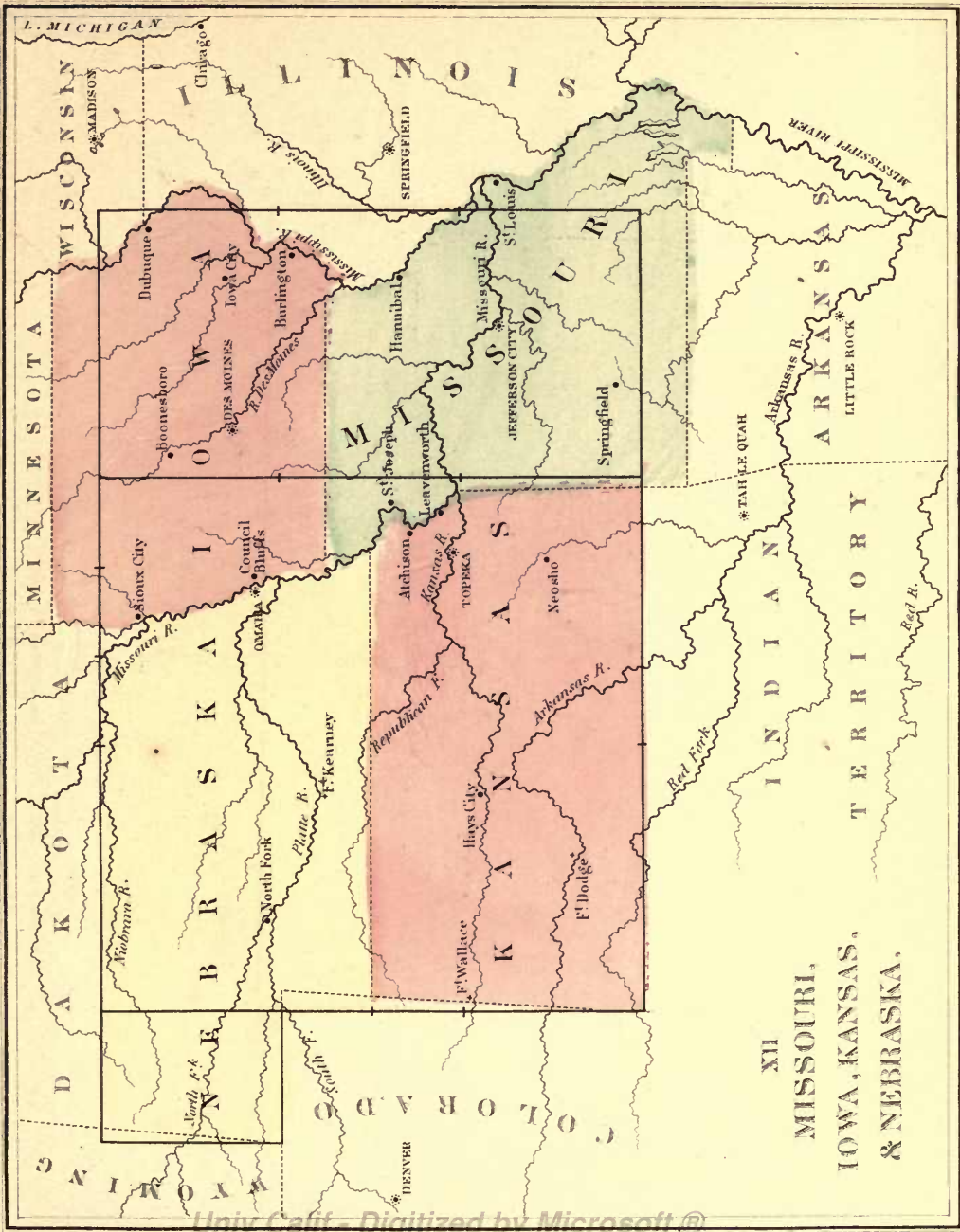
I O W A

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FIGURE FOR MISSOURI, IOWA, KANSAS AND NEBRASKA.

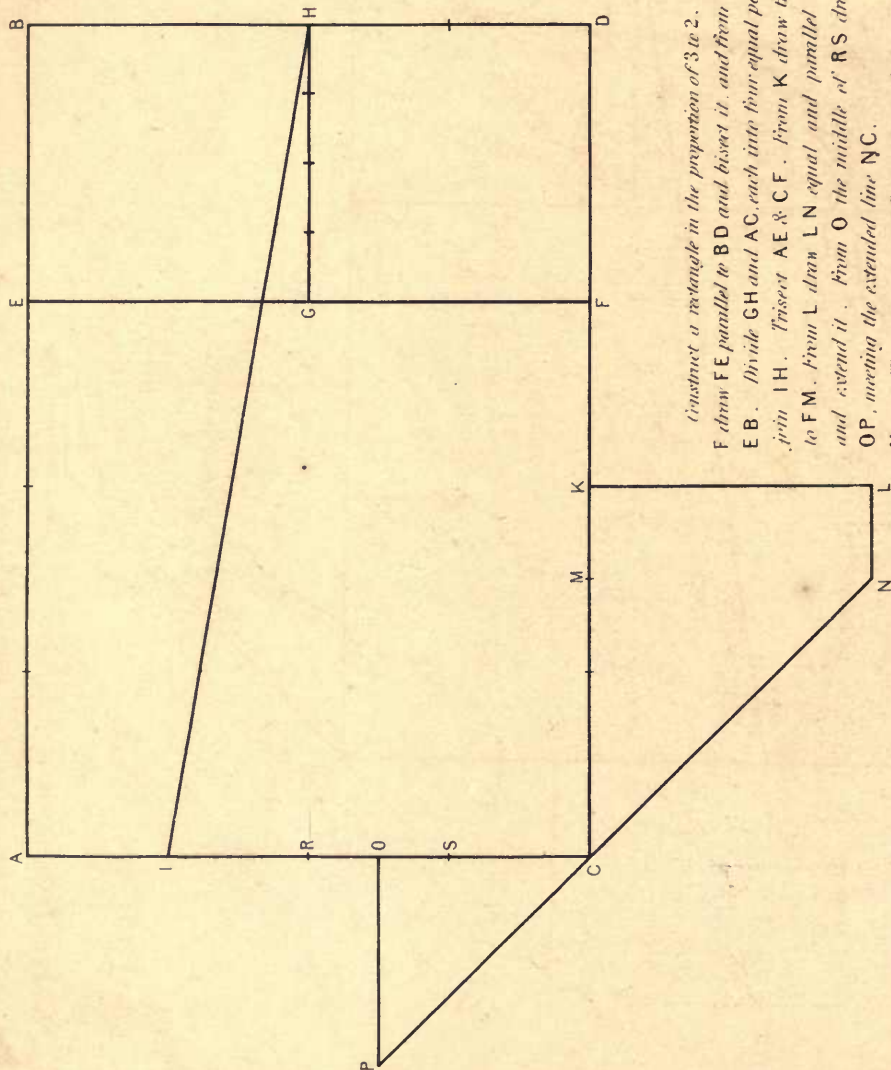


Construct a rectangle in the proportion of 3 to 2. Trisect each side. Bisect EF and extend AB, making AH equal to the half of AG. Join IK and trisect it. And trisect IG. Complete the rectangle AHLE.



XII
 MISSOURI,
 KANSAS,
 IOWA, KANSAS,
 & NEBRASKA,
 TERRITORY

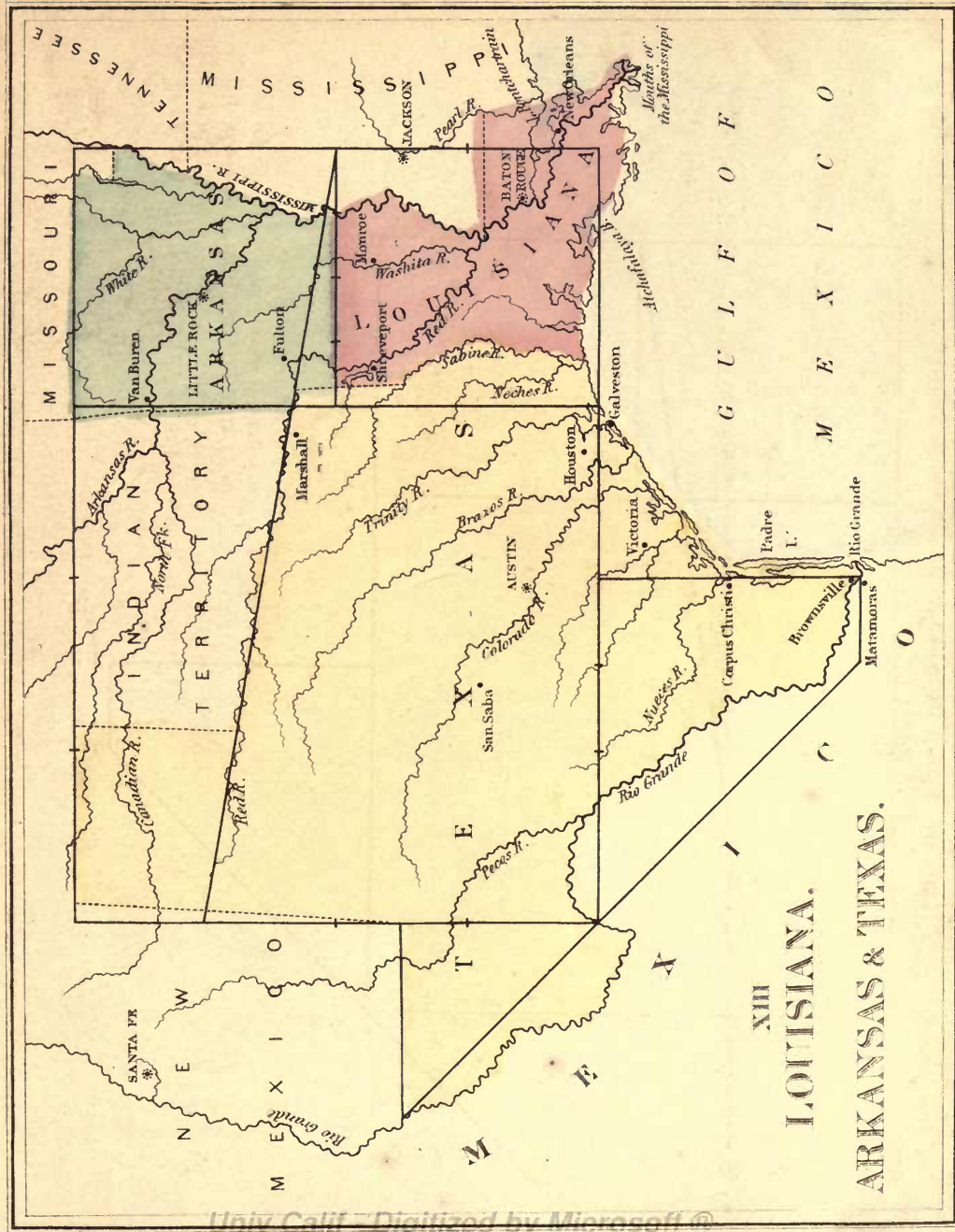
FIGURE FOR LOUISIANA, ARKANSAS & TEXAS.



Construct a rectangle in the proportion of Step 2. Trisect CD, and through F draw FE parallel to BD and bisect it, and from G draw GH parallel to EB. Divide GH and AC, each into four equal parts. Bisect HD and join IH. Trisect AE & CF. From K draw the vertical KL equal to FM. From L draw LN equal and parallel to KM. Join NC, and extend it. From O the middle of RS draw the horizontal line OP, meeting the extended line NC.

Note. The rectangle EFDB may be used separately for the two States.

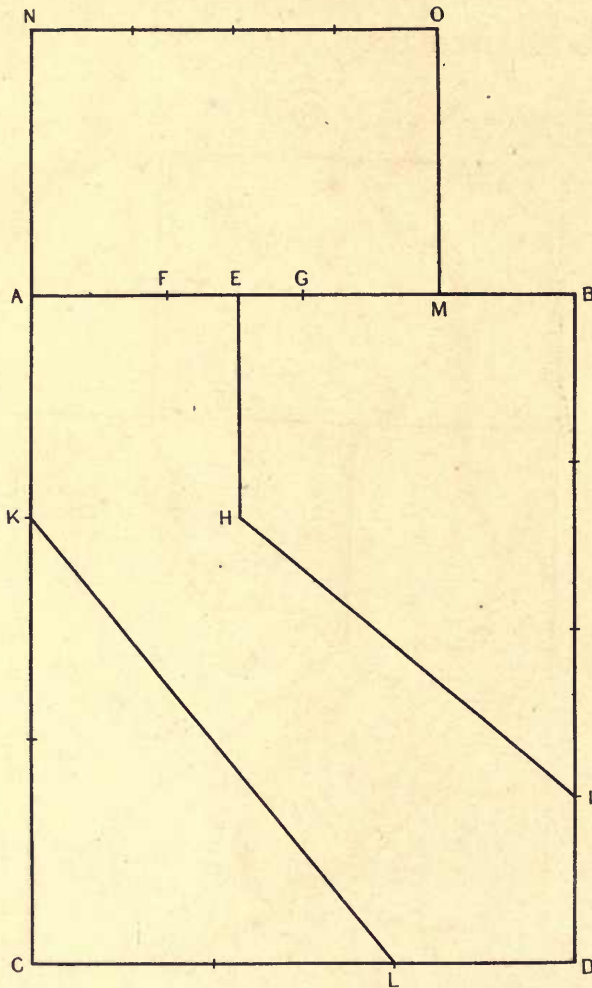
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XIII
LOUISIANA.
ARKANSAS & TEXAS.

G U L F O F
 M E X I C O

FIGURE FOR CALIFORNIA, OREGON & NEVADA.



Construct a rectangle in the proportion of 4 to 5. Divide AB and BD each into four equal parts; and trisect AC and CD. Bisect FG, and draw EH, parallel and equal, to AK. Join KL and HI. Extend AC, making AN equal to AG. Complete the rectangle ANOM and divide NO into four equal parts.

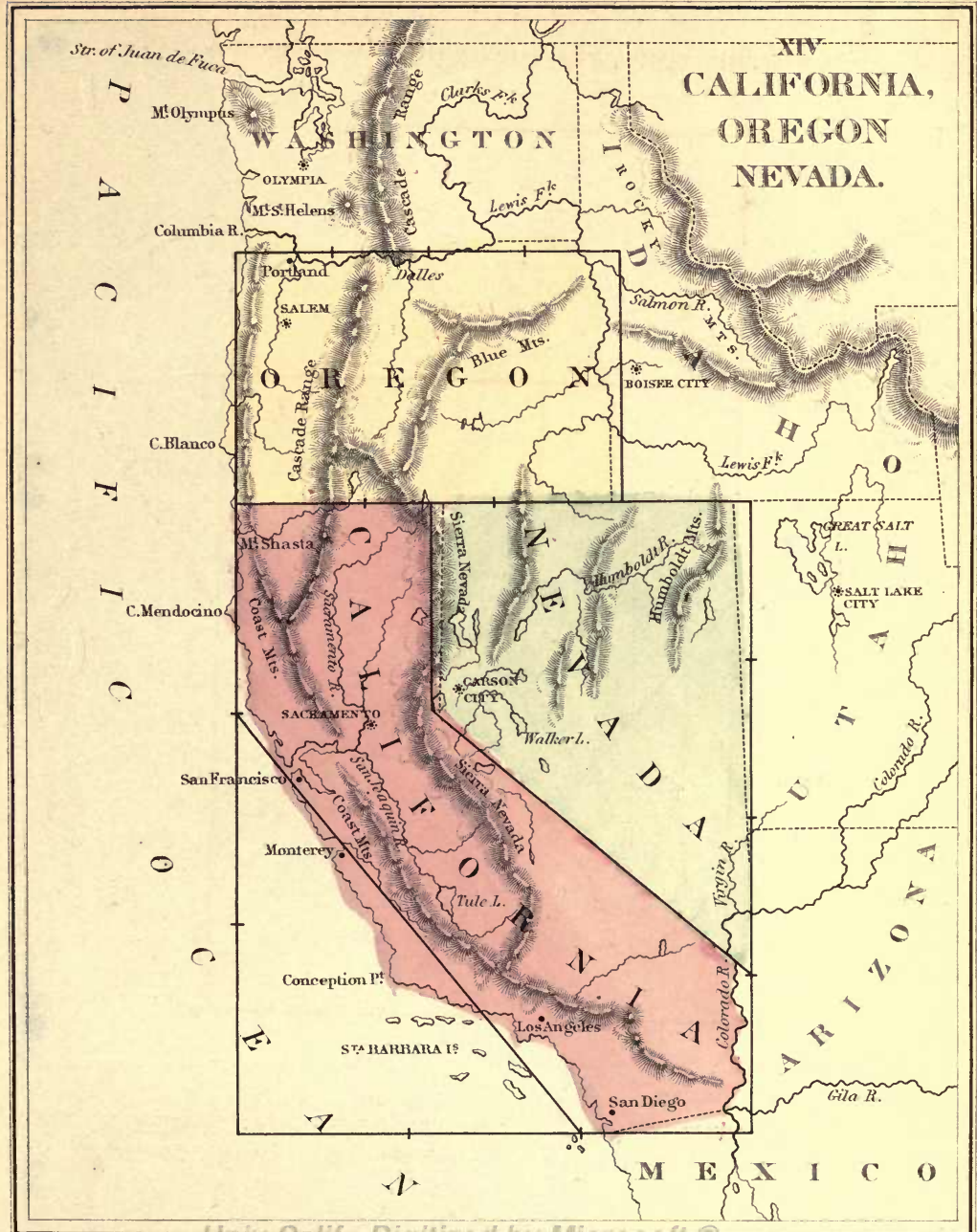
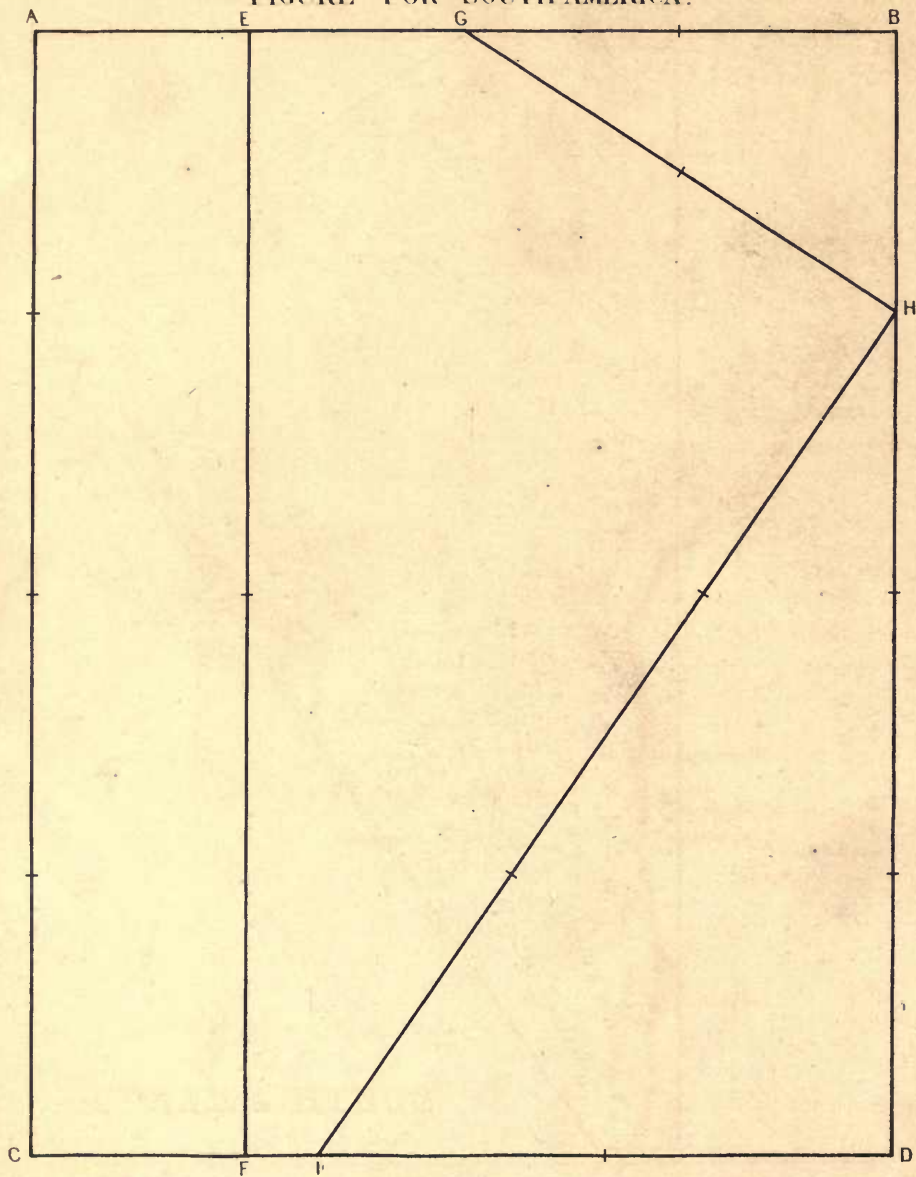


FIGURE FOR SOUTH AMERICA.



Construct a rectangle in the proportion of 3 to 4. Divide the three sides AC, AB, BD into four equal parts. Trisect CD. Through E draw EF parallel to AC and bisect it. Join GH and bisect it. Join HI and trisect it.



XV
SOUTH AMERICA.

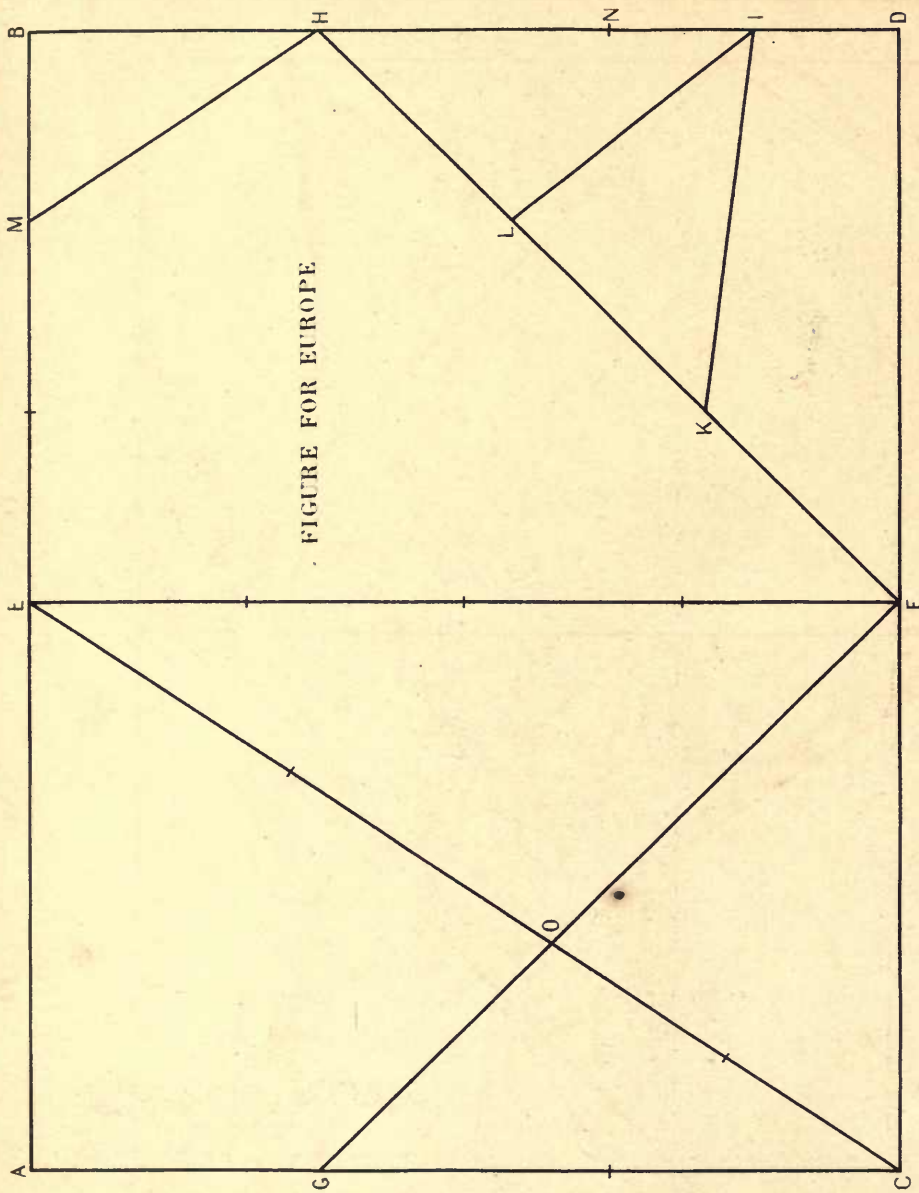


FIGURE FOR EUROPE

Construct a rectangle in the proportion of 4 to 3. Bisect AB and CD. Trisect AC and BD. Join EF and divide it into four equal parts. Join FG and FH and trisect the latter. Bisect DN and join IK and IL. Trisect EB and join MH. Join EC and bisect each of the sections OE and OC.

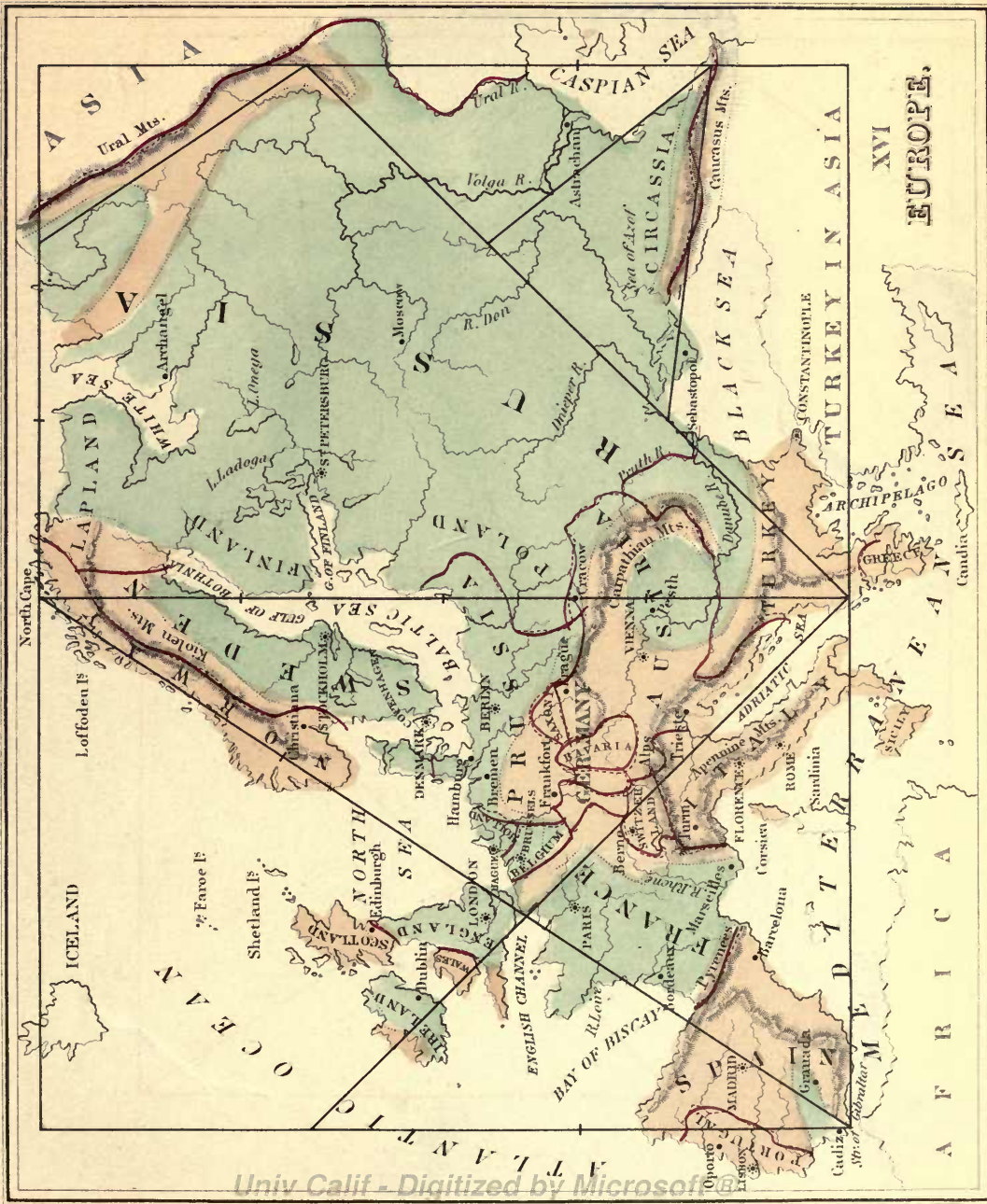
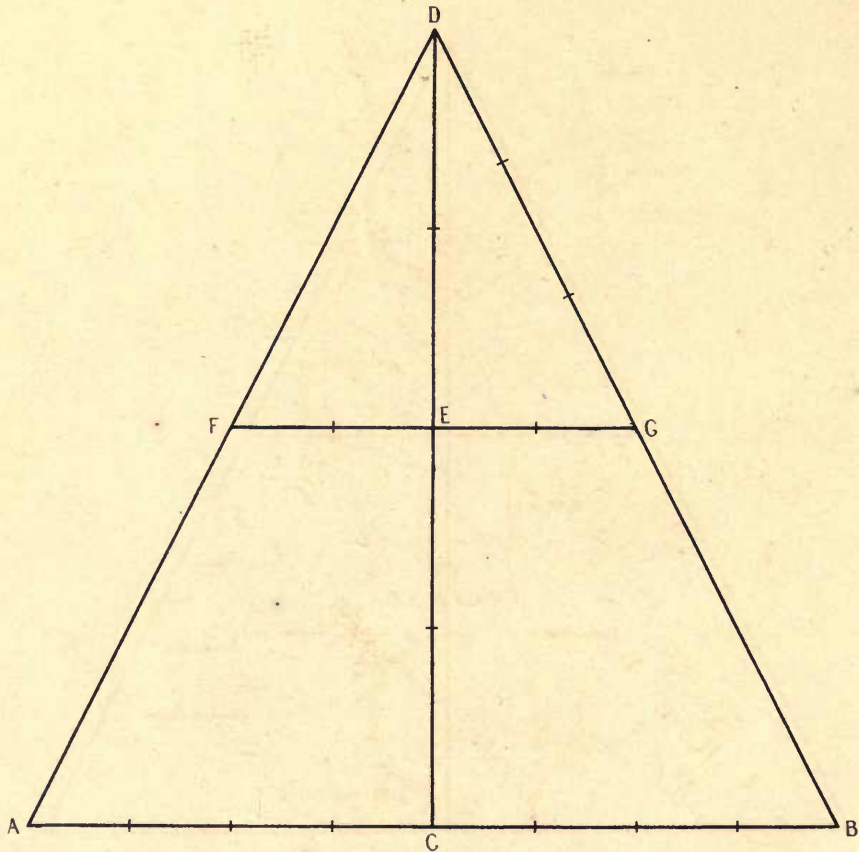
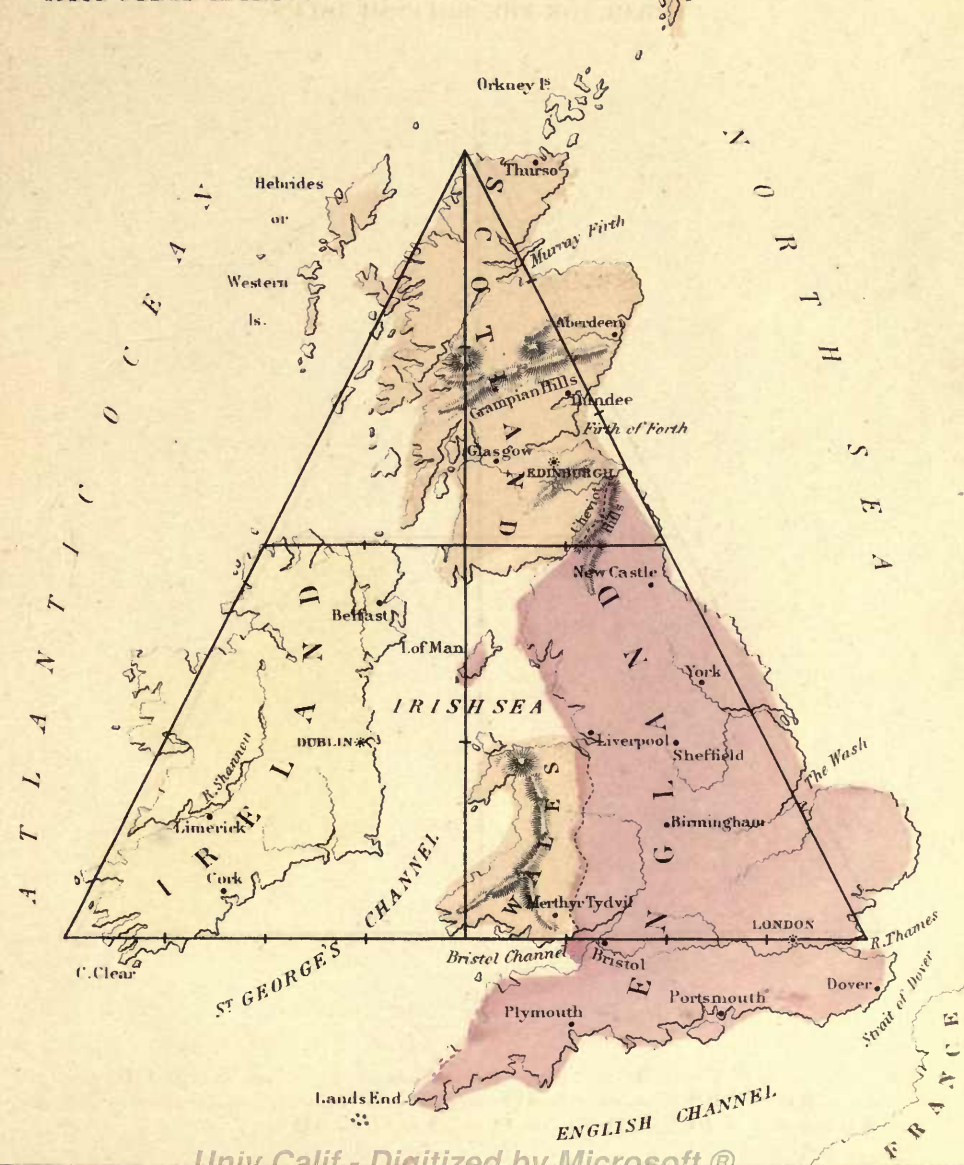


FIGURE FOR THE BRITISH ISLES.



Draw a horizontal line AB , and bisect it. At C erect the perpendicular CD equal to AB , and join AD and DB . Divide CD , AC and CB , each into four equal parts. Through E draw FG parallel to AB . Bisect FE and EG and trisect GD .

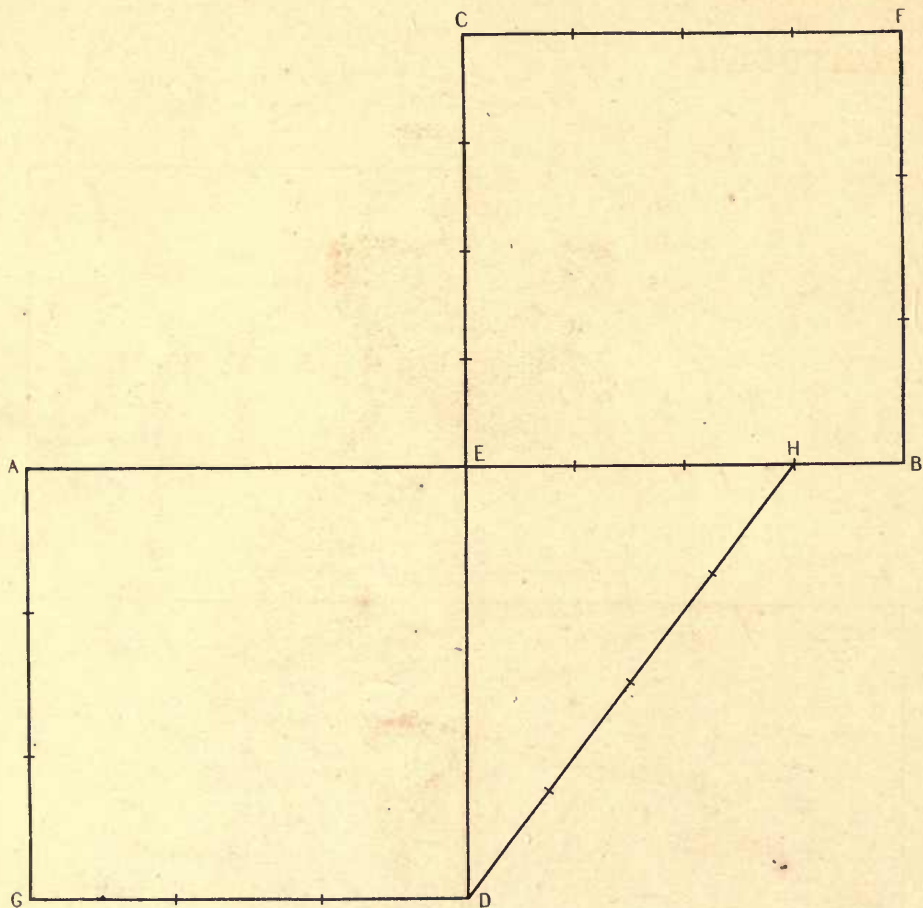
XVII BRITISH ISLES.



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FIGURE FOR FRANCE SPAIN & PORTUGAL.



Draw two lines AB and CB bisecting each other at right angles in the point E. Complete the squares CEBF and AGDE. Divide CE, CF and EB, each into four equal parts. Trisect AG, GD and FB. Join DH and divide it into four equal parts.

XVIII
**FRANCE, SPAIN
AND
PORTUGAL.**

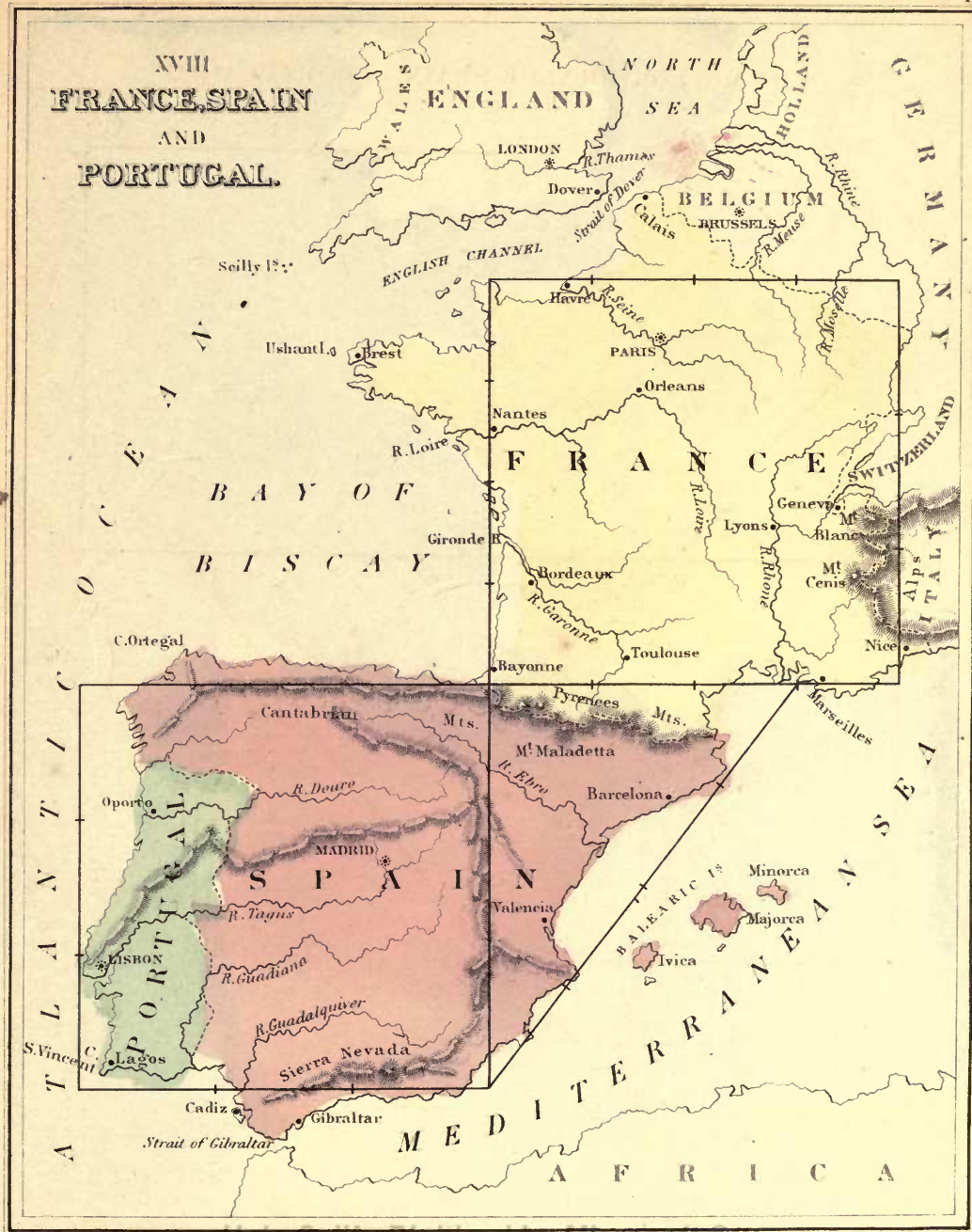
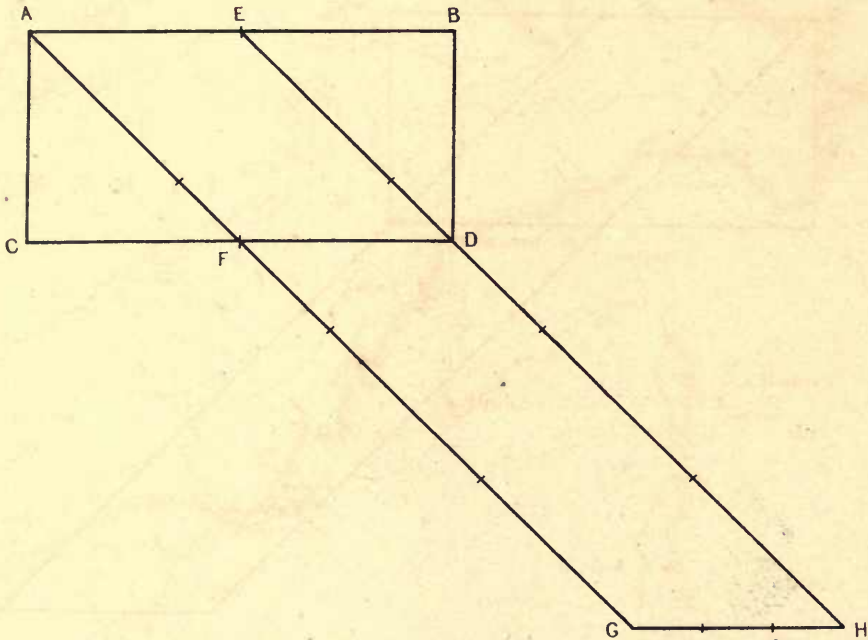


FIGURE FOR ITALY.

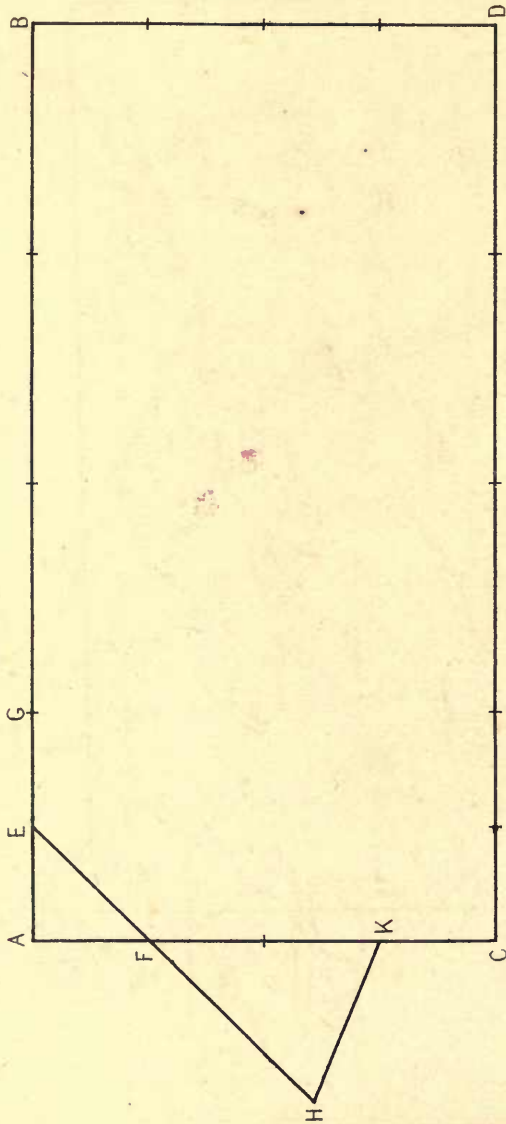


Construct a rectangle in the proportion of 2 to 1. Bisect AB and CD. Join AF and extend it, making AG equal to twice the length of AB. Through D draw EH equal to AG. Join GH and trisect it. Divide AG and EH each into four equal parts.

XIX ITALY



FIGURE FOR NORTH GERMAN CONFEDERATION, HOLLAND & BELGIUM.



Construct a rectangle in the proportion of 2 to 1. Divide each side into four equal parts. Bisect AG and through F draw EFH, making FH equal to FK and join HK.
 Note. Belgium may be drawn in connection with this map.

XX
NORTH GERMAN
CONFEDERATION,
HOLLAND & BELGIUM.

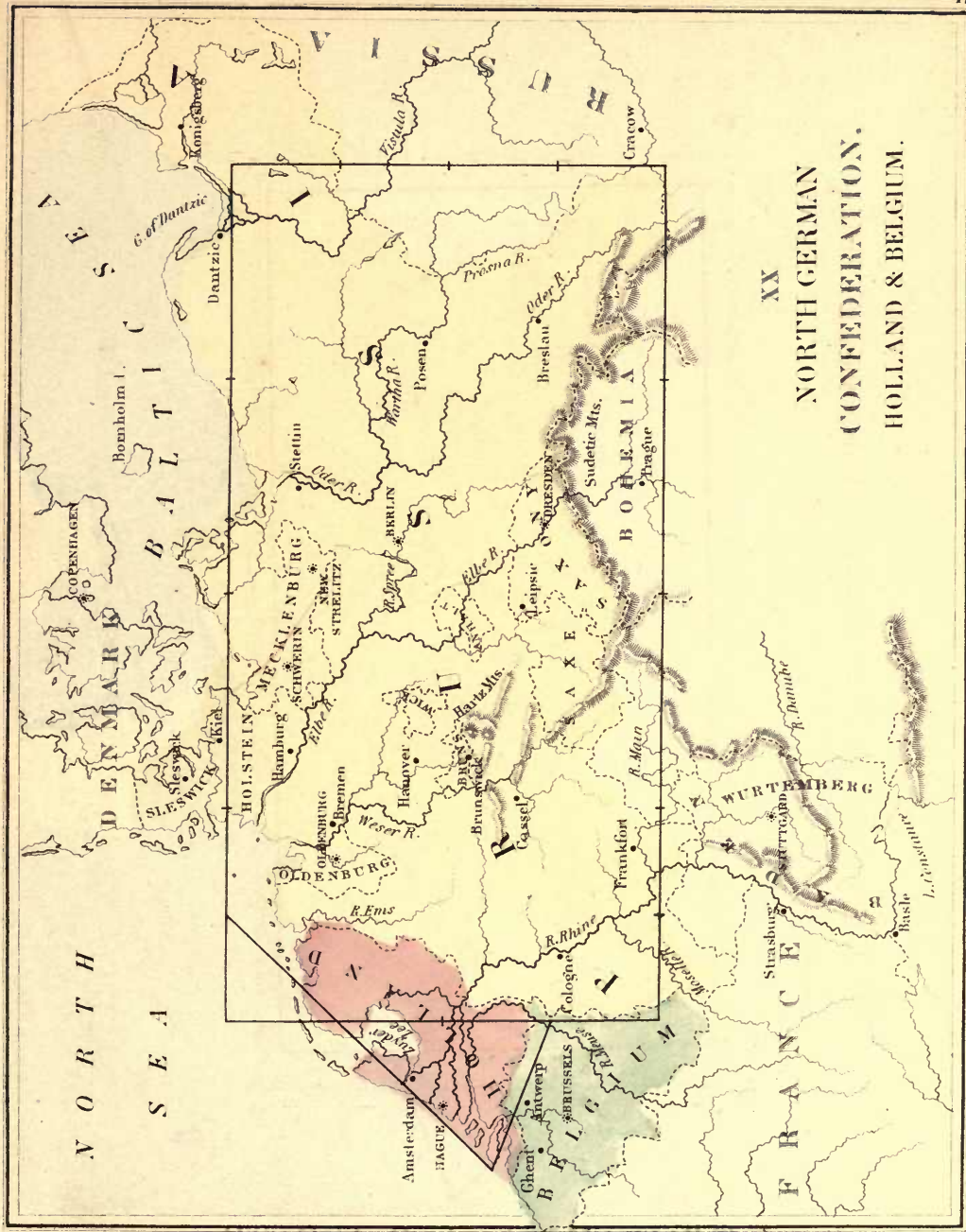
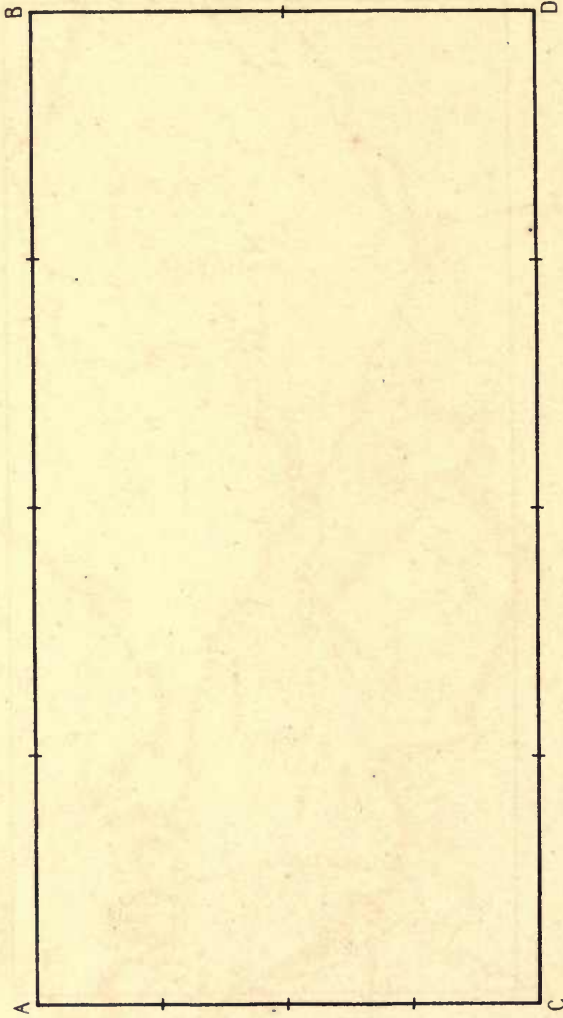


FIGURE FOR AUSTRIA, S. GERMANY & SWITZERLAND.



*Construct a rectangle in the proportion of 2 to 1. Bisect **BD**, and divide each of the other sides into four equal parts.*

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XXI AUSTRIA, S. GERMANY, AND SWITZERLAND.

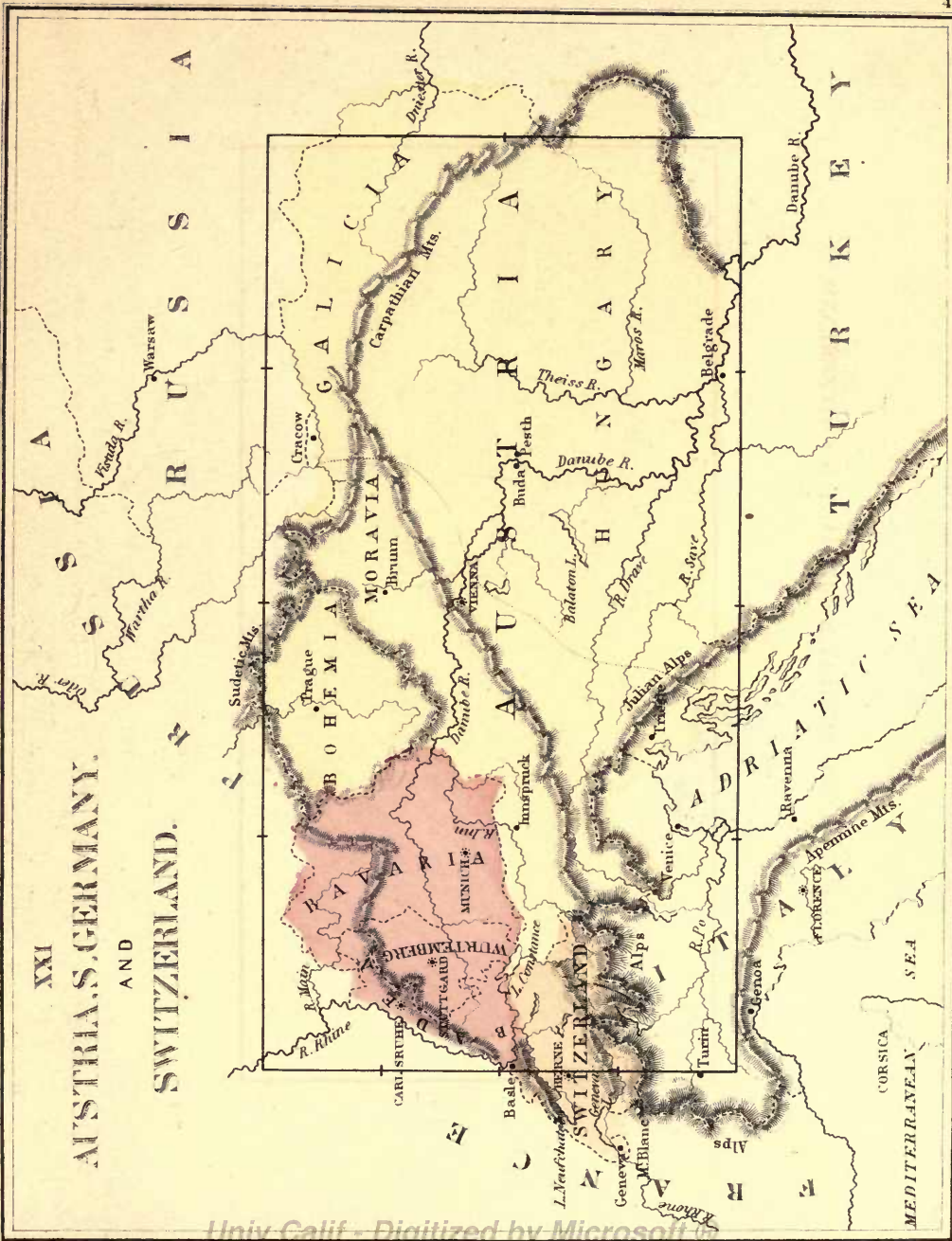
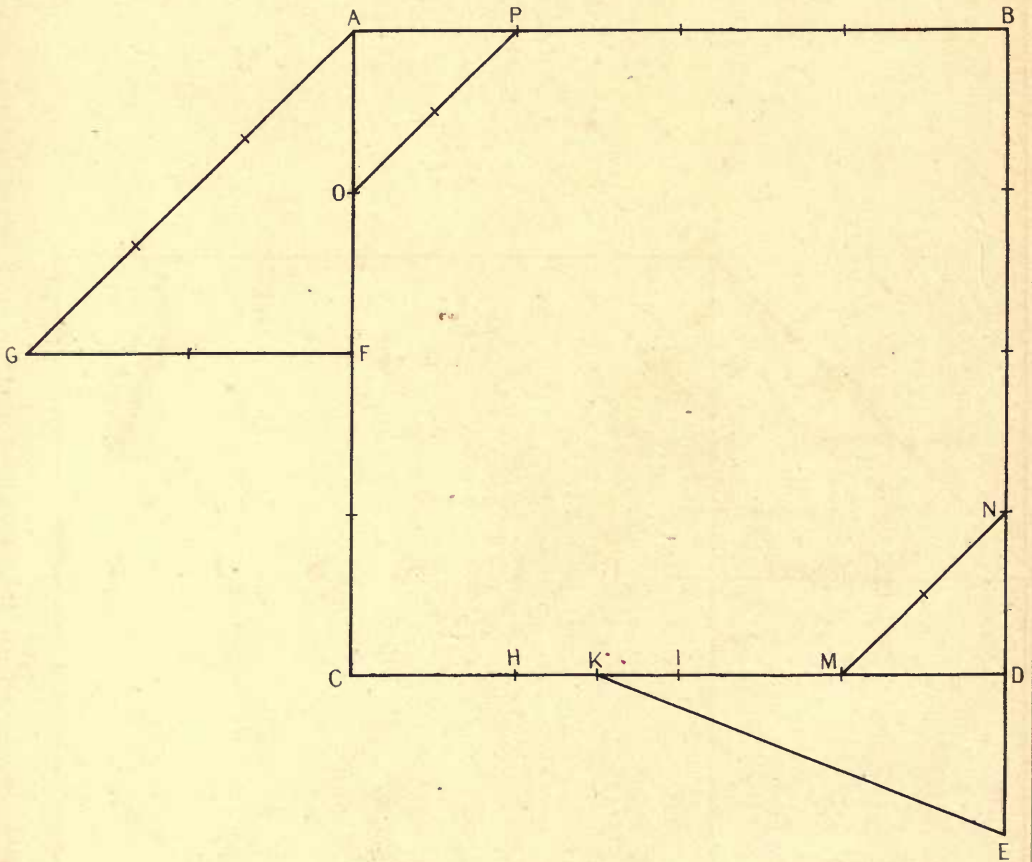


FIGURE FOR RUSSIA, SCANDINAVIA & DENMARK.



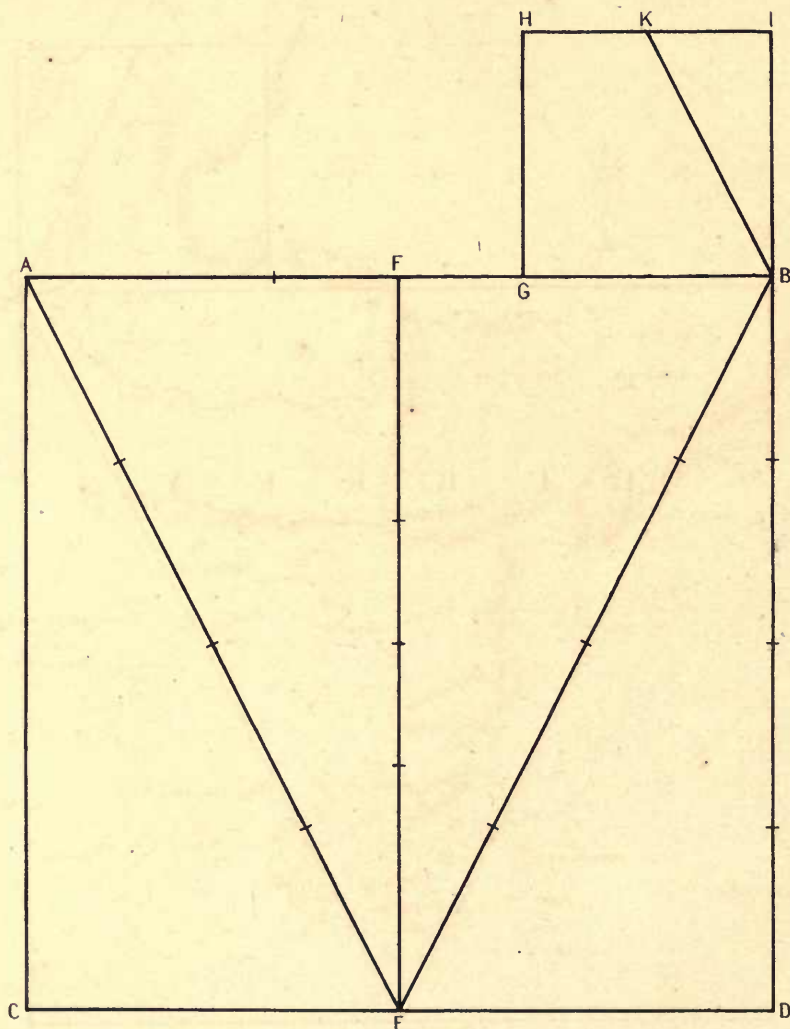
Construct a square $ABCD$ and divide each side into four equal parts. Extend BD and make DE equal to DN . Bisect HI and join KE . Through F draw FG equal to the half of AC , and bisect it; join AG and trisect it. Join OP and MN and bisect each of them.

XXII RUSSIA. SCANDINAVIA & DENMARK.

A R C T I C O C E A N



FIGURE FOR TURKEY & GREECE.



Construct a square $ABCD$. Bisect CD and through E draw EF parallel to AC . Trisect AB and EF , also bisect the middle section of EF . Divide DB , EB and EA , each into four equal parts. On GB construct a square. Bisect $H1$ and join KB .

XXIII TURKEY & GREECE.

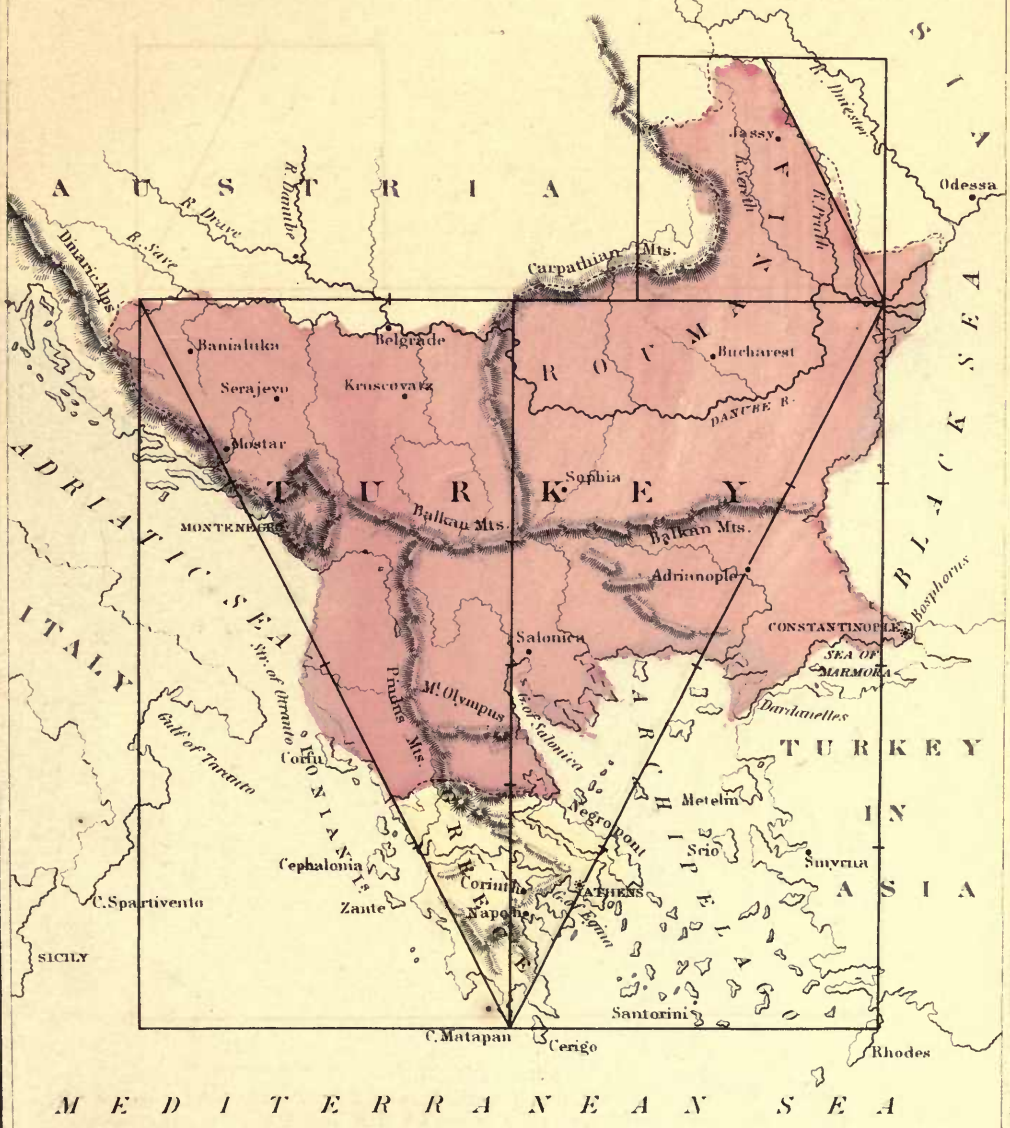
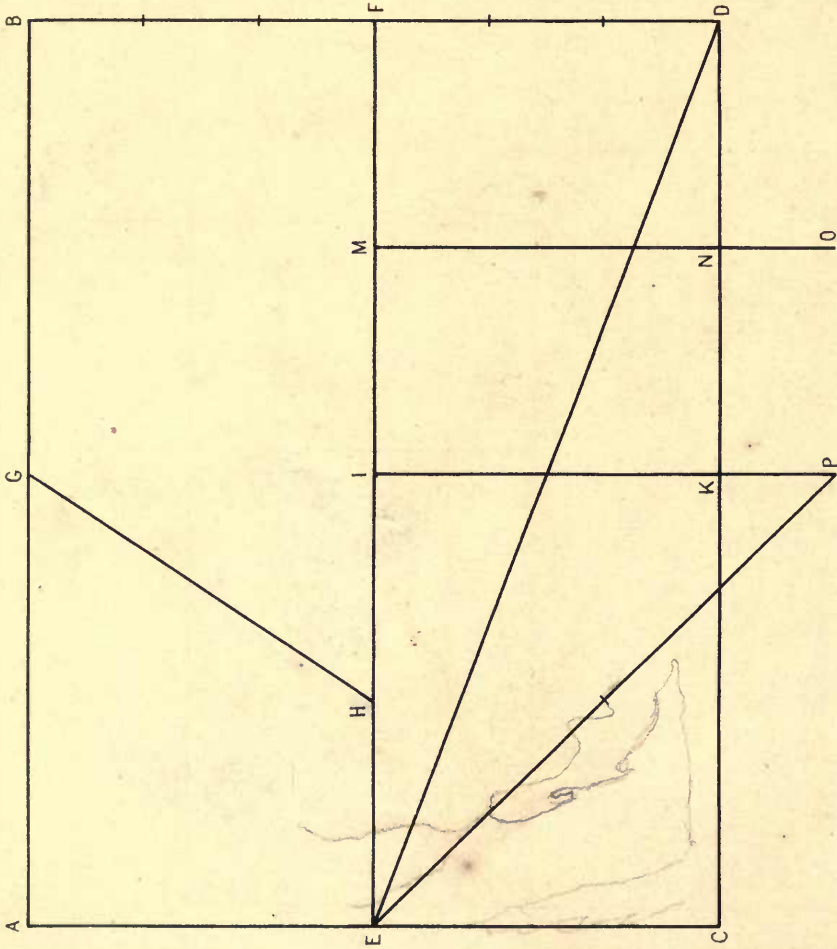
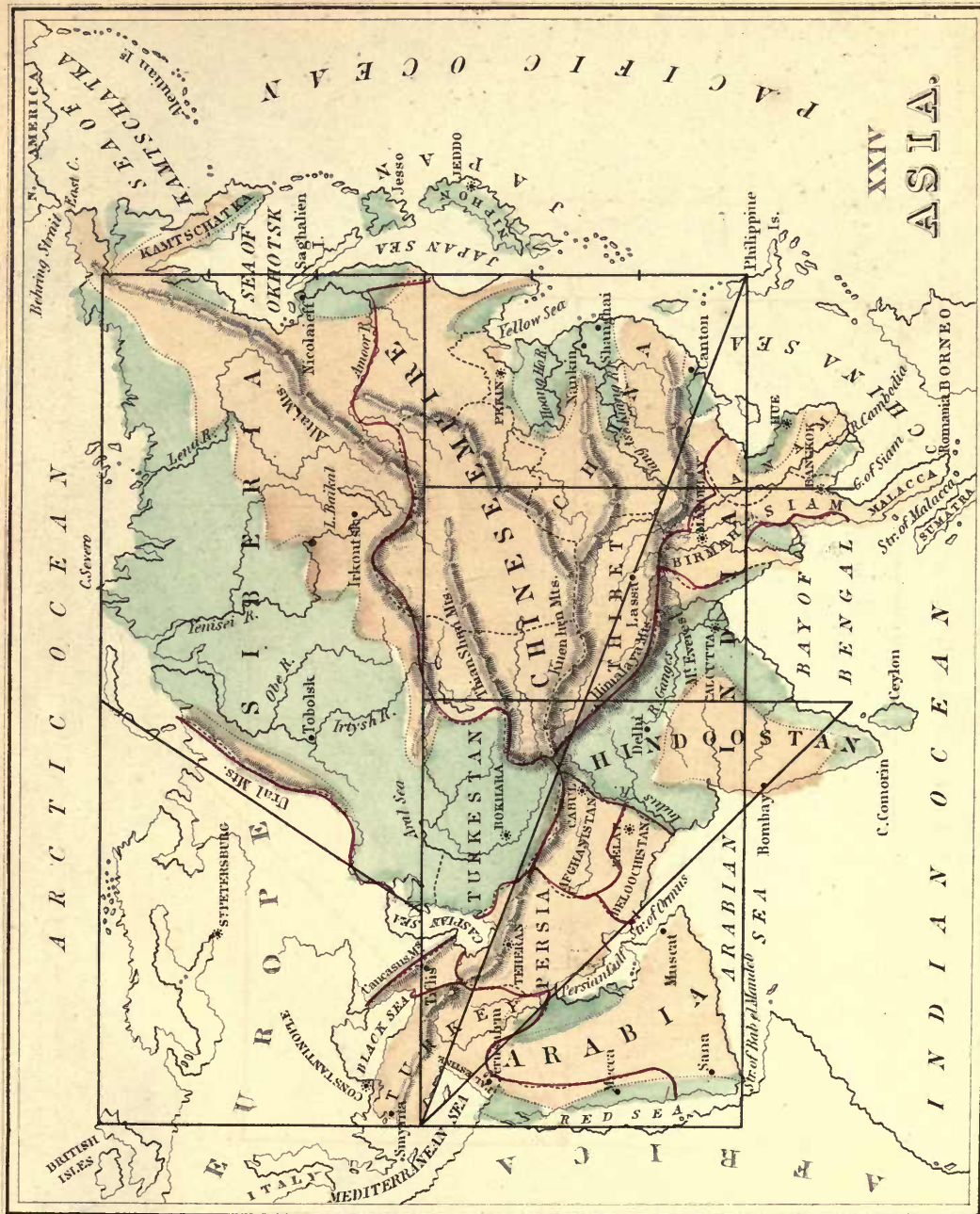


FIGURE FOR ASIA



Construct a rectangle in the proportion of 4 to 3. Bisection each side, and join EF and divide it into four equal parts. Join GH, and ED. Through K draw the line IP and make it equal to IF. From M draw MO, equal and parallel to IP. Join EP and bisect it.



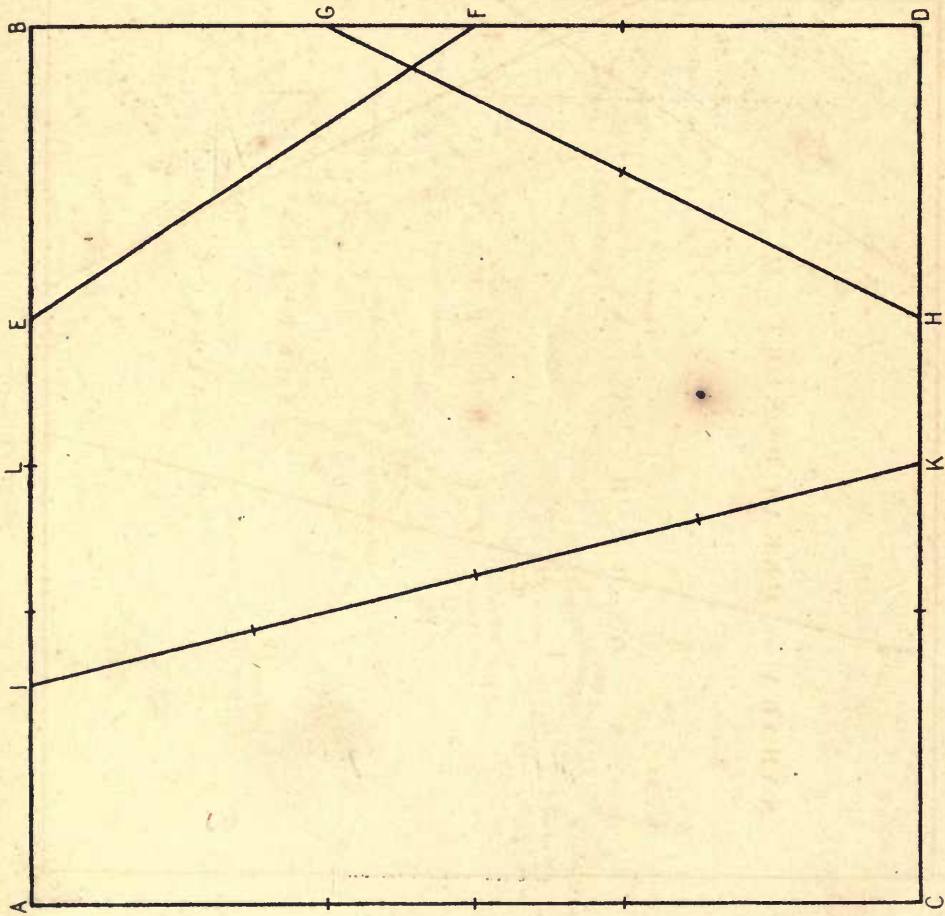
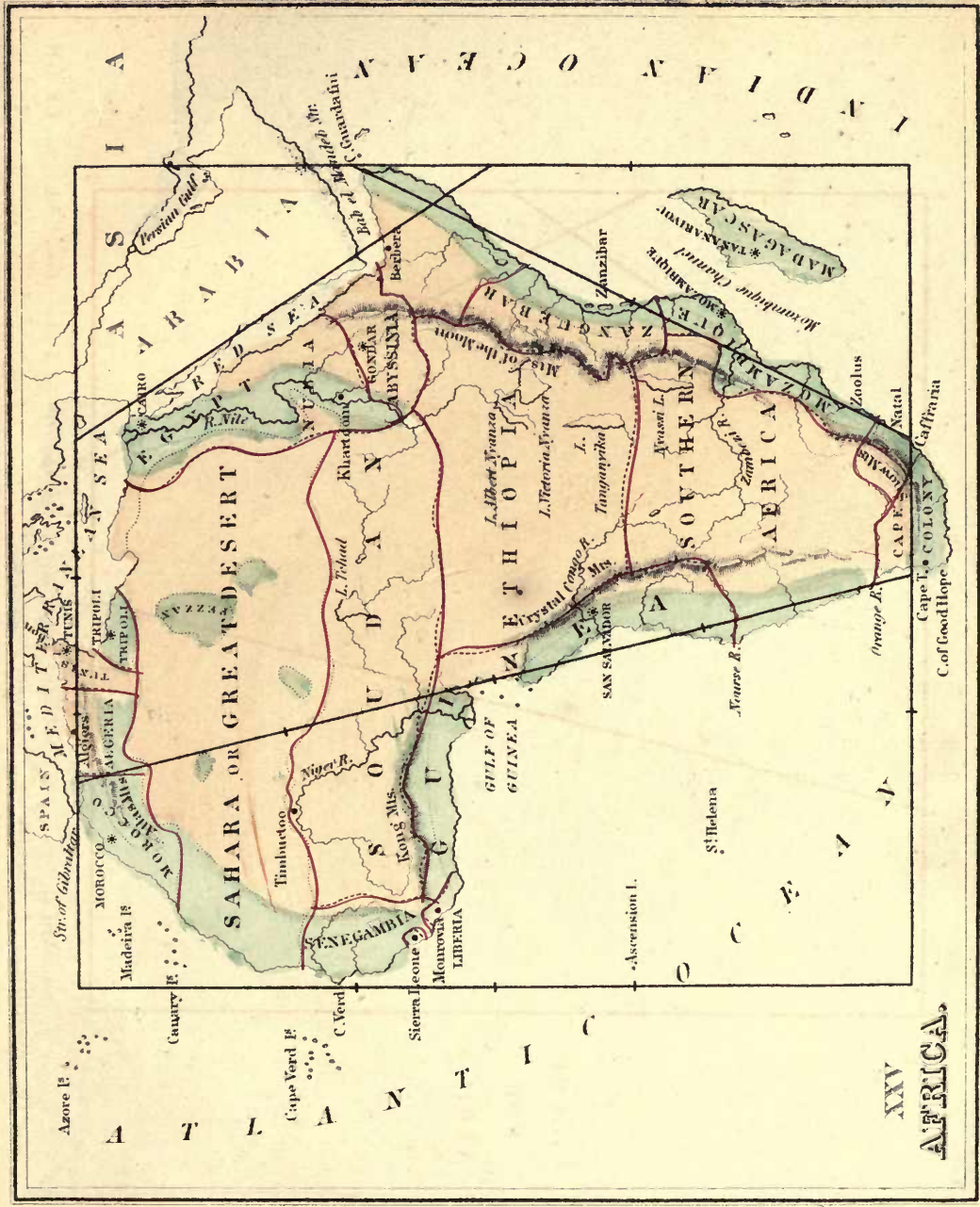


FIGURE
FOR
AFRICA

Construct a square ABCD. Trisect each side, and bisect the middle third of each line. Bisect AL. Join EF, GH, and IK. Bisect GH, and divide IK into four equal parts.



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