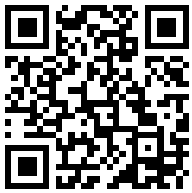

KENTUCKY GEOLOGICAL SURVEY

AND BUREAU OF IMMIGRATION.

JOHN R. PROCTER, Director.

REPORT

ON THE

PROGRESS OF THE SURVEY

FROM MAY 1, 1880, TO JANUARY 1, 1882.

By JOHN R. PROCTER.

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OFFICE OF THE GEOLOGICAL SURVEY, January 1, 1882.

To his Excellency, L. P. BLACKBURN, *Governor of the Commonwealth of Kentucky:*

SIR: I have the honor to make the following report on the progress of the Geological Survey of the State.

Upon the resignation of my honored predecessor, Professor N S. Shaler, I was appointed to succeed him in the direction of the Survey, the appointment bearing date of April 26, 1880.

The act appropriating money for the continuation of the Survey was amended by the following provision creating a Bureau of Immigration:

§ 4. That the Governor shall, at this and each regular meeting of the Legislature, appoint a State Geologist, by and with the advice and consent of the Senate, for the term of two years, or until his successor is appointed and qualified, who shall reside at Frankfort, and be there at all times when not engaged in the necessary Surveys, and who shall also be a Commissioner of Immigration. Said Commissioner shall attend to the office work of the Survey, and, in addition thereto, he shall collect, compile, publish, and circulate, in such manner and by such agencies, and in such places as he may deem proper and advisable in the United States and in foreign countries, pamphlets and other publications descriptive of the resources and advantages of this State, and such other facts and information having a tendency to attract and promote immigration, and otherwise use his discretion in the furtherance of immigration, and the bringing of skilled labor and capital into the State. He shall also collect and disseminate such information as in his judgment will best aid in the founding of industries to utilize and manufacture within the State the raw products of the State.

The duties of the State Geologist were thus greatly enlarged, whilst the amount appropriated was less than had previously been made since the inauguration of the present Survey. At the outset this amount was greatly reduced by the payment of claims for work done in 1879. With the limitations thus imposed, it was no easy task to plan work for the future in order to give the several portions of the State needed attention, and at the same time secure the best results to the entire State. The region most requiring immediate attention was that portion of the eastern coal-field on the upper waters of the Big Sandy, Licking, Kentucky, and Cumberland rivers.

Here is the largest area of the State unprovided with transportation facilities; the country is but sparsely populated, and unable to construct the necessary transportation ways to bring it into communication with the great tides of commerce passing to the North and South; the

region abounds in resources of such great value that it is only necessary to make them known in an authentic form to insure the building of the much needed transportation ways. Of the region comprising the counties of Elliott, Morgan, Johnson, Martin, Floyd, Pike, Magoffin, Wolfe, Powell, Lee, Rockcastle, Laurel, Leslie, Clay, Knox, Bell, Whitley, Pulaski, and Wayne, no reports on the geology and resources, save preliminary reconnoissance reports on limited areas, had been made by either the present Survey or the Survey conducted by Dr. D. D. Owen. Detailed reports, accompanied by excellent maps, had been made by the present Survey on the Geology of Greenup, Carter, Boyd, and part of Lawrence counties, and on Menifee county. In volume IV of Dr. Owen's Reports was published an able report by Joseph Lesley, jr., on the "Outcrop base line following the western border of the Eastern coal field," giving in brief much valuable information respecting the tier of counties from the Ohio river to the Tennessee line, along the western edge of this coal-field. The above conditions made it my duty to organize the principal corps of the Survey for active work in this district; and Prof. A. R. Crandall, who had been well-fitted for this task by his admirable work in the Eastern coal-field, was appointed assistant with instruction to take the field as soon as he could organize his force. The corps, as organized, consisted of Prof. A. R. Crandall, chief; Mr. C. G. Blakely, assistant; Prof. J. G. White, topographer; with Mr. John Shackleford, jr., and Mr. H. C. Saunders, aids. Prof. Crandall was instructed to make such a study of the country as would enable him to make a report, not only on the geology, mineral resources, and forests, but upon the relations of the geological formations to the agricultural resources of the region.

I deem it of utmost importance, even in the mineral districts of the State, to give prominence to the agricultural capabilities and requirements of the region, for reasons which will be given hereafter. I have the pleasure to report most satisfactory progress and results from the work by Prof. Crandall and his assistants during the summers of 1880 and 1881. A topographical map has been made (an engraved copy of which is presented with this report), comprising portions of the counties of Rowan, Morgan, Magoffin, Johnson, and Floyd. The map of Elliott county has also been drawn ready for the engraver, and much data for the map of Martin county obtained. The preliminary report on the above named counties has been published, and the final report on all of the above counties is now in course of preparation, and will be

given to the printer during the present winter. Preliminary surveys have been begun in Wolfe, Breathitt, Perry, Letcher, Pike, and southern portion of Floyd; very good progress having been made in the first four, where most of the geological work of the eastern corps has been done during the past season. Map work for these counties may be regarded in a state of forwardness from the data of railway and river surveys now being compiled and drawn to a common scale. The reports of Prof. Crandall will show a wealth of resources in the region examined as great as the most sanguine could desire. It was discovered that there was, just beyond the State line, in the divide between the head waters of the Powell river and the waters of the Cumberland river, a coal suitable for the production of coke of superior quality. The importance of such a coal in determining the development of manufacturing in the Ohio valley is very great. The entire region between Pennsylvania and Colorado is supplied with coke from the Connellsville region, Pennsylvania, and Quinnemont region, West Virginia. From the former region 600 carloads of coke are sent away daily. Believing that this coking coal could be found in the drainage of the Cumberland and Kentucky rivers, Prof. Crandall was sent there during the past season to make search for and trace this coal as far as possible. His success was greater than anticipated.

This coal was found and traced over a wide area on the head waters of the Cumberland, Kentucky, and Big Sandy rivers, above drainage, and averaging from 7 feet to 8 feet thick. The following analyses by Dr. Robert Peter, Chemist of the Geological Survey, show the great value of this coal. These analyses are from carefully averaged samples. Nos. 1, 2, and 3 are from Letcher county, Nos. 4 and 5 from Pike county, and Nos. 6 and 7 from Floyd county. The location of the above coals are not given, because I deem it proper that the results of analyses and tests should be given to the owners of coals examined by the Survey before the same are made public in the published reports, whenever the names of the proper owners can be ascertained:

	No. 1.	No 2.	No. 3.	No. 4.	No. 5.	No 6.	No. 7.
Specific gravity	1.355	1.319	1.291	1.271	1.282	1.302	1.281
Moisture	8.00	2.86	3.26	2.00	2.60	2.04	2.10
Volatile combustible matter .	30.96	31.54	32.24	35.50	34.10	37.42	37.16
Fixed carbon	57.60	62.10	61.60	60.54	61.80	54.34	54.74
Ash	4.34	3.50	2.90	3.96	2.40	4.20	3.00
Sulphur	.494	.535	.656	.429	.412	1.475	.596

For the purposes of comparison and enabling an estimate to be placed on the value of these coals, I give below analyses of some of the best of the celebrated coking coal of Pennsylvania. No. 3 is the coal at Connellsville. Analyses copied from volume L, page 63, Second Geological Survey of Pennsylvania:

	No. 1.	No. 2.	No. 3.	No. 4.
Moisture	1.260	. .	1.260	2.375
Volatile matter	30.107	22.380	30.107	32.565
Fixed carbon	59.612	68.500	59.616	49.955
Ash	8.233	8.000	.784	1.900
Sulphur	.784	1.120	8.233	13.145

Here we have for comparison analyses from the best coals of Pennsylvania, so determined after years of working, and analyses from coals opened in a few weeks' exploration in Kentucky. We have reason to believe that this remarkable coal-bed can be identified and traced further north, and will prove one of the most valuable, if not the most valuable, coal-bed in America. I do not hesitate to assert that the finding of this coal will prove, in the near future, worth to this State ten times the entire cost of the Geological Survey, from its first inception to the present time.

During the spring of 1880 correspondence was begun with persons interested in the construction of railways from the South Atlantic States to Kentucky, and with persons interested in the construction of roads southward from Central and Eastern Kentucky. In September of the same year Prof. W. C. Kerr, State Geologist of North Carolina, and myself met the representatives of roads projected from North and South Carolina, Southwest Virginia, and East Tennessee, at Bristol, Tennessee, and much was accomplished in encouraging the projectors of the several roads to renewed efforts. No roads which can be constructed will bring larger benefits to Kentucky than roads from the direction indicated. They will open up a market for the coal of Southeastern Kentucky; a market of which they will have entire possession from the State line to the Atlantic Ocean. They will bring together the very rich, pure iron ores of Western North Carolina and East Tennessee, and the pure coking coals of Eastern Kentucky. They will bring the great Clinton iron ores along our southeastern border to the coking coals of Kentucky, and to furnaces in Northeastern Kentucky, and lead to the investigation and discovery, I believe, of these same ores along the great Pine Moun-

tain fault. They will open a nearer route to the Atlantic ports, not only for the forests of Eastern Kentucky, but for all the products of a large portion of the State. In the autumn of the same year I wrote and published a report on the "Resources of the North Cumberland Valley," comprising parts of Whitley, Knox, Bell, and Harlan counties. Several editions of this report have been required to meet demands, and it has had a wide circulation in Kentucky and abroad, and had the desired effect of drawing much attention to that peculiarly favored region.

Prof. C. J. Norwood, of Russellville, Kentucky, who had done much valuable work in investigating the Western coal-field, was directed to continue his observations on the southern border of that field through the counties of Butler, Muhlenburg, and Hopkins. This work was interrupted by the illness of Prof. Norwood in 1880. The results will not be published until the final report, accompanied by map, can be made. Much is expected from the report on this region on account of the good quality of coals, the relation to a coalless area of great fertility, and destined to contain a dense population to the south, and the abundance of iron ores of good quality.

The map of the region between the Tennessee and Tradewater rivers, north of the Paducah and Elizabethtown Railway, was drawn in the winter of 1879-'80; but a few weeks' additional field work will be necessary to complete it ready for publication. On this map the western boundary of the Western coal-field will be shown, which, with the map of the southern boundary above referred to, will complete the Survey of the counties on the borders of that field, and leave only a few interior counties of that field to be completed. The map of the region west of the Tennessee river has been drawn, and the geology of portions of Fulton, Graves, Hickman, Ballard, and McCracken counties has been studied; but as this region will be all included in one report, it will be necessary to extend observations over Marshall and McCracken counties before the publication of this report. Analyses and observations on the very valuable pottery and fire-clays of this region are contained in Dr. Robert Peter's "Chemical Report," published during the winter of 1880–'81.

Dr. D. D. Owen, in the last report made by him, says:

"No complete reliable geological map of the entire State can be constructed until detailed Surveys are carried through the knobby regions of Salt river, including Marion, Nelson, Bullitt, Jefferson, and part of Oldham counties, in middle Kentucky, together with a corresponding belt in parts of Lewis, Fleming, Bath, Montgomery, Clark, Madison,

Garrard, Lincoln, Casey, Russell, Cumberland, and Monroe counties; and until the boundary lines are surveyed between the blue limestones of Lower Silurian date and the magnesian limestones of Upper Silurian date, comprising two lines, which commence on the Ohio river—one near the confines of Trimble and Oldham counties, the other near the confines of Lewis and Mason counties—and run in courses, more or less meandering, but gradually converging until they will, probably, be only a fraction of a mile apart, near where the Cumberland river enters the State of Tennessee. This must be the work of after years."

Realizing the importance of this work, but, at the same time, being unwilling to diminish the regular geological work in progress in the coal-fields, I was pleased to find that it would be possible to have this accomplished at a nominal cost to the State by local assistants, who, by their scientific training and long study of the rocks of their respective counties, rendered them peculiarly fitted to do the work in a creditable manner to the State. Maj. Wm. J. Davis and Henry Nettleroth undertook the work in Jefferson and Bullitt counties; Mr. Wm. T. Knott in Nelson and Marion; Prof. J. C. Fales, Lincoln and Boyd; and Mr. Wm. Linney, Mercer and Garrard.

By using the several existing county maps, and correcting errors in same from points established by the United States Geodetic Survey, and Railway Surveys, and from the observations in the field of the gentlemen engaged in the geological work, it will be possible to construct at small cost excellent maps of this region on which the various geological groups may be correctly colored. I had, under the directions of Prof. Shaler, made a geological survey of Madison county, the map of which is partially engraved. The report on Garrard and Mercer counties is in the hands of the printer, and the maps ready to be engraved. The map of Jefferson is nearly finished, and I hope that the reports on the entire region can be published during the present year. I trust that arrangements can be made for the carrying northward similar work through the counties of Clark, Montgomery, Bath, Fleming, Mason, and Lewis, without interference with the regular work of mapping and studying the resources of the two coal-fields. In order to complete the final geological map, it will also be necessary to determine the dividing lines between the upper or cavernous member of the subcarboniferous limestone, and the lower, or what was named by Dr. Owen, the geodiferous member of that formation. The soils produced by these two rocks are very different, and require a different treatment by the agriculturist. This line meanders through the counties of Livingston, Trigg, Simpson, Allen, Barren, Metcalfe, Green, Larue, Hardin, and Meade. I deem it best that this

line should be determined in such a manner as to obtain at the same time a final report on the geology, soils, timbers, and other resources of the counties through which it passes, and thus avoid the expense of duplicating work.

In the prosecution of such work, I believe it will be advantageous to the State and the Survey to receive the aid and coöperation of teachers of natural science in various schools and colleges of the State, who can, after a study of the fossils from the different geological horizons, as arranged in the State Cabinet at Frankfort, and a few weeks' work in the field with some one familiar with the rocks, acquire a sufficient knowledge to enable them to trace the different formations and render valuable assistance in the preparation of the reports.

Mr. C. Schenk has been engaged during the summer months, by the U. S. Geodetic Survey, in carrying on the regular triangulation of the State, and when not so engaged, in platting from notes of field work, under the direction of Prof. Shaler, the boundary line between Kentucky and Virginia, from Cumberland Gap to the Big Sandy river. This line has never been established by actual survey, and it is of great importance that the work so well begun be completed. The map has been finished from Cumberland Gap to Potato Knob, at the head of Clover Fork, in Harlan county; but I deem it economy to withhold publication of same until it form a part of the completed map of that region. Mr. Schenk has also drawn a map, the result of his field work in portions of Monroe, Cumberland, Clinton, and Wayne counties; but as the sheet may include a much larger area of the Cumberland oil region, this map will not be published until additional surveys are made in that region.

The chemical work of the Survey has been conducted by Dr. Robert Peter, and such substances as have been collected and forwarded to the laboratory have been analyzed and tested, and the forthcoming report of Dr. Peter will contain much of interest and value to the State. Valuable acquisitions have been made to the State Cabinet, and the entire collection has been arranged and classified by Mr. W. M Linney. A collection of minerals was sent to the International Exhibition at Atlanta, where they were well arranged by Mr. Linney. This collection will soon be returned to the State Cabinet, with valuable additions made to it by Mr. Linney from the minerals on exhibition from other States at Atlanta.

As there is no work accessible from which students may acquaint themselves with the numerous fossil forms abounding in some of the

rocks of this State, I arranged with Mr. Wm. J. Davis to describe the corals, and Mr. Henry Nettleroth the brachiopods from the Kentucky rocks, some of which have not been previously described. These reports will not only be of great value, but will reflect great credit upon the State and upon the authors. As these reports will be of great scientific value, they will command a price which will reimburse the State for the entire cost of preparation and publication.

Volume V (new series) is now ready for publication. The various parts have already been published in pamphlet form, with the exception of the report on Ohio county, which has been delayed by loss of drawings of sections in course of transmission to the engraver.

The correspondence of the Survey has steadily grown in volume, until it has become quite a tax upon my time, but is of such value to the State that it should not be neglected.

Immigration.

The amount appropriated by the Legislature, in the spring of 1880, was designed, as the bill was originally drawn, for geological work only; but the amendment quoted on page 3 changed the tenor of the act, and, small as was the amount available, I determined to do my utmost to carry out the law. A familiarity with all parts of the State convinced me that immigration of the right kind would give the prosperity and wealth to which Kentucky is so eminently entitled by position, fertility of soil, salubrity of climate, and abundance of natural resources. That we have not made the most of these great gifts, I believe those who love the State and are proud of its history are free to admit. It has been well said that careless hopefulness respecting our surroundings has an evil influence in preventing the attainment of any real knowledge of existing conditions and needs. It is with a view to show how we have neglected our great gifts, and what may be accomplished in placing Kentucky where she is destined to stand, as the great centre of wealth and power in the Mississippi Valley, that comparison is instituted with other States.

Kentucky has about the same area as Ohio. I believe the present Survey will demonstrate the fact that the State has a greater area than 40,000 square miles. The amount of fertile land is greater in Kentucky than in Ohio. The latter State has but a limited area of the Blue limestone, and no soil corresponding to the great fertile belt of Sub-carboniferous limestone lands surrounding the Western coal-field of Kentucky, nor will the best of the coal-measure soils of Ohio equal in quality the

very fertile lands of that formation on the waters of Green and Tradewater rivers, and there are no lands in Ohio corresponding to the fertile lands west of the Tennessee river in Kentucky. I know from personal observation that much of the land in Ohio in a high state of cultivation, and yielding large returns, is situated on the same geological formations and of like quality of lands which, in Kentucky, have been almost wholly neglected by the agriculturist. The coal-field of Ohio is of less area than the coal-fields of Kentucky. With the above conditions in view, the following comparison from the United States census of 1870* will be instructive:

	Kentucky.	Ohio.
Area in square miles	40,000	40,000
Population, 1880	1,648,599	3,200,000
Value of farm crops, 1870	$87,477,374	$198,256,907
Value of manufactured products, 1870	54,625,809	569,713,610
Value of product of mines, 1870	509,245	7,751,544

Thus we have a total production from agriculture, mining, and manufactures of $146,612,428 in Kentucky, and $775,732,061 in Ohio. The gains from commerce are not to be taken into account, as commerce is not production; but we purchase largely from Ohio of those articles which should be produced at home; and with an area of coal much larger than that of Pennsylvania, we purchase more coal annually from that State than is mined in Kentucky.

One reason for this disparity in production is, that Ohio, situated on the great highways connecting the East with the West, the great stream of immigration which has passed through that State has brought wealth to that State. But there are other reasons.

In the South the system of agriculture, which was the natural outgrowth of slave labor, and the ease with which that labor could be concentrated and mobilized, might well be termed a marauding agriculture. The richest lands were appropriated by the slave-owner, and often exhausted by improvident tillage; after which, new lands were occupied, the exhausted lands generally becoming waste places. On the richest lands, suited to the few crops adapted to slave labor, the immigrant, and poorer and non-slave holding farmer, were at a hopeless disadvantage, and were, by the nature of the circumstances, forced upon lands where slave labor was less remunerative. Instead of adapt-

* The publication of the last Census is not yet sufficiently advanced to afford means of comparison.

ing the culture to the various lands of which there was much variety, the same system was followed on the poorer lands, and thus in Kentucky we have, on all the different geological formations, suited to a large range of production, and requiring on each formation a distinct culture, but one system of agriculture in practice. On the poorer lands, often unsuited to the production of cereals, only the cereals were grown until the lands were exhausted, after which they were abandoned and new lands were cleared. By this system the tillable area of the State has been constantly growing less.

Past us has swept the great tide of immigration, bringing to the Northwest wealth; bringing great powers of production; bringing the industrial secrets of the high civilization of Europe. This great tide, and the resultant development following in its wake, has carried away thousands of our best men. Receiving no compensating accessions from without, the State has sent forth an army of her sons to build up the West. In 1870 there were 875,415 native-born white citizens of the State in Kentucky, and 333,708 residing in other States. We had received 11,916 natives of North Carolina, and 44,390 from Tennessee; but the accessions from those States were not altogether remarkable for agricultural thrift. Thus a large area of the State, mainly in the southeastern portion, has been neglected by our own people, although fertile lands were there unoccupied, and even the poorest would bring remunerative returns if a system of agriculture was practiced suitable to the requirements of the soil. That these soils are capable of a high agricultural development is easily demonstrable. The Eastern coal-field of Kentucky is a continuation of the southward extension of the Pennsylvania coal-field, with the same character of rock; but the amount of fertile land, and land not too rugged for tillage, is much greater in the former; yet the value of agricultural products in ten of the counties of Eastern Kentucky, with an aggregate area of 4,960, was, in 1870, $1,364,052; and in ten counties of the Pennsylvania coal-field, with an area of 6,700 square miles, it was, for the same year, $29,807,000. Washington and Allegheny counties, Pennsylvania, having an area of 1,580 square miles, with a soil similar to that of many of the counties in our Eastern coal-field, returned farm products to the value of $8,959,282. Whilst the counties of Bourbon, Fayette, Clark, Nicholas, Harrison, and Jessamine, aggregating 1,930 square miles, returned for the same year agricultural products valued at $8,717,374. If such eturns may be had from our poorer soils, what may be expected from

the vast area of fertile lands in the State, with an increase of our agricultural population? I believe the highest civilization, and the greatest boons of civilization, can only be attained by a dense agricultural population. The prevalent idea that emigration from Europe is caused merely by density of population, is an error.

From Belgium, with the densest population in Europe (461 to the square mile), emigration is very slight, as it is also from France, where the population is dense. The reasons are, that in those countries the laws are favorable for land-holding by the masses, and France has 9,079,756 land-owners living on their estates, and 4,570,068 farmers and tenants; and 52 per cent. of the entire population is engaged in agricultural pursuits. Whilst in Germany, with a population larger than France, there are only 1,844,202 land proprietors; and in Great Britain the proportion of land-owners is much smaller. The desire to *own land*, and to be rid of the burthens of taxation and forced military service, is a sufficient explanation for the large emigration from those countries to the unoccupied lands of America. To realize how ungrounded are all fears of a too dense population in America, it is only necessary to know well the wonderful capacity of this country and its great extent. The present population of the entire United States could be placed in the State of Texas, and the population of that State would then only be 192 persons to the square mile, or less dense than the population of Germany, Belgium, England, and other European countries, and less dense than the population of Massachusetts, which has, according to the last census, 229 to the square mile.

I wish to call your attention to another evil which I think may soon be corrected by immigration. From the last report of the Auditor (1881), it will be seen that in 76 counties the expenses exceed the revenue paid to the State, aggregating $397,853. The 41 counties paying into the State Treasury more than they draw from it, have a total area, as returned by the assessors, of 6,826,426 acres, or 10,668 square miles; about one fourth the area of the State. The building of railways through these non-revenue paying counties will not alone correct the evils. It is too often the case, where roads are constructed through timbered regions, that the small farmer who has worn out his lands by corn and tobacco culture alone, neglects agriculture for the temporary profits derived from the products of the forest (cross-ties, staves, lumber, tan-bark, &c.), and thus our valuable forests are depleted with no compensation of comfortable homesteads and fruitful fields following in their stead.

This evil must increase, for the large and increasing demands for lumber from the States to the north and west of Kentucky will make larger drain upon our forests each year. It is possible to follow these pioneers with men who will reduce, what else would be a waste, to productive farms. Desiring to see what could be accomplished on the poorest of the coal-measure soils, in June, 1880, I visited a small Swiss colony at Gruetli, on the Cumberland Plateau, in Tennessee. This colony was established by the Swiss Consul at Knoxville about thirteen years ago, and the result of the experiment is very encouraging. The colony lands, as poor as the poorest lands in Kentucky, are situated in a wilderness remote from railways. Great trouble has been experienced by the colonists on account of defective titles. They were all poor, and had no such encouragement as comes from being surrounded by prosperity and thrift: yet in the face of adverse circumstances they have, by their industry, thrift, and intelligence, changed, what a few years since was a wilderness of pines and scrub oak on a thin, sandy soil, into beautiful meadows, orchards, vineyards, and well tilled fields; pretty cottages surrounded by flowers and vines; comfortable barns well stored, and evidence of thrift and happiness greet the eye throughout the entire colony. The cellars were well stored with good wine, the product of their vineyards; and excellent cheese evidenced the profitableness of their meadows. I saw there meadows as promising as any seen in the most fertile portion of Tennessee or Kentucky. These lands, which the native population occupying them on the road to Gruetli assured me were worthless for agricultural purposes, the Swiss have demonstrated to be well suited to grapes, fruits, grasses, potatoes, onions, &c.

I was convinced that such a people would find in Kentucky a rich reward for their labor, and would prove an inestimable blessing in rendering productive and beautiful lands which otherwise might remain a burthen upon the State. In my efforts to organize for this work, I was hampered by my inexperience, as immigration was new to Kentucky. My aim was to reach only the better class in Europe—persons able to purchase land or willing to work on farms, skilled artisans and miners. I have the honor to report the following concerning my labors in that direction, and the results:

At the outset much inconvenience was experienced from a lack of publications especially suited to answer the inquiries of intending immigrants, and my first efforts were to provide such. A carefully prepared description of Kentucky, with information respecting soil, cli-

mate, minerals, &c., compiled mostly from the published reports of the Geological Survey, with statistical information, was prepard by Mr. Chas. L. Franke, of Louisville. To this I added an introduction descriptive of the State, and several appendices prepared by others, and the whole was published in the German language. This pamphlet has passed through several editions, and has been widely circulated in Germany and Switzerland. A carefully prepared article by Dr. Robert Peter, on "The Excellence of the Soils of Kentucky, addressed to the farmers of Great Britain and Ireland," with an introduction descriptive of Kentucky by myself, was published for distribution in Great Britain. I invited a Swiss Commission, which I learned was in the United States for the purpose of selecting a location for a colony of their countrymen, to visit Kentucky, and accompanied two of the gentlemen through portions of the State. Mr. Otto Brunner, of Bern, Switzerland, one of the Commissioners, formerly Director of the Swiss Agricultural College, on returning to his native country published a report,* in which he highly recommended Kentucky to such of his countrymen as might be enabled to bring to America means wherewith to purchase homes. In February, 1881, Mr. Brunner returned to Kentucky, and with Mr. Paul Schenk, of Switzerland, after a careful examination, selected lands for a first colony in Laurel county, near the line of the proposed extension of the Louisville and Knoxville Railway. This colony—Bernstadt—now contains over two hundred and fifty industrious, frugal, and intelligent Swiss. Many of these are well-to-do farmers, and most of the farmers are also skilled artisans, and the colony has all the elements necessary to prosperity.†

I am assured from letters received from Switzerland that there will be many additions to the colony from that country in the spring, and there are also indications that many Swiss will come to the colony from the Northwestern States.

The foreign correspondence rendered it necessary to appoint, with your approval, an assistant who could attend to it, and I was most fortunate in being enabled to secure the services of Mr. E. A. Fellmer as secretary to the Bureau, whose excellent command of the German, French, and English languages, together with his enthusiastic devotion to the duties of the office, have rendered his services of great value to

* "Die Auswanderung nach den Vereingten Staaten Nord Amerikas," Bern, 1880.

† An illustrated description of the Bernstadt Colony has recently been published for distribution in Switzerland, and to the Swiss in America who may contemplate joining the colony.

the State. Much of the success thus far achieved, and the greater success anticipated in the near future, is to be attributed to the untiring fidelity and painstaking labor he has bestowed on this department.

In the spring of 1881 I prepared and published "Information for Emigrants: the climate, soils, timber, etc., of Kentucky, contrasted with those of the Northwest."

This was designed to induce immigration to, and prevent emigration from, Kentucky, and I am gratified to know it has been productive of good. It has had the effect of attracting attention in England and Scotland, where it has been widely circulated, to the superior advantages possessed by Kentucky, and has already brought British farmers to this State; and there is every indication of a very desirable emigration of English and Scotch farmers to Kentucky in the spring. As your Excellency has been informed, during the progress of this work, of the methods employed, a brief summary of the results will suffice.

In addition to the Swiss colony in Laurel county, about forty Swiss have located in Lincoln county. From letters received from these colonists, I am informed that they are well pleased, and have written to their countrymen advising them to come to Kentucky. Lands have been secured in the southern part of Boyle county for a French colony of wine-growers, one family having arrived, and from letters recently received from France, I am assured that a large colony of French farmers and wine-growers will follow. A location has been secured in Western Kentucky for a colony of Germans and Scandinavians, and the colony is now organizing under the direction of Mr. Emile Lindburg, who has had large experience in the business of colonization, and has established an office in New York City for this purpose. A colony of Saxons has been organized, and the leader will come to Kentucky to select a location. Other colonies are in process of organization, but it would be improper to designate them on account of the strict surveillance and measures instituted by some of the European governments to prevent emigration. A number of coal-miners from the Northumberland district of England has been sent along the line of the Paducah Railway. Many of these hope to acquire here homes for their families. The inquiries from States north and west concerning price of lands, climate, &c., of Kentucky are numerous and increasing, and we may soon hope for an immigration which will compensate for the loss experienced by the State in the many thrifty people enticed to that region by the unstinted advertisement and

rapid development of that region. A very liberal policy, calculated to encourage immigration, has been adopted by the principal railways in the State, by which my labors have been much facilitated.

I have no means of knowing the number of immigrants brought into the State through the instrumentality of this Bureau. In 1880, the year the Bureau was organized, the number was very small. From the best data I have been able to collect from the railway companies, and more especially through the kindness of Mr. J. C. Baumberger,* Secretary to the Helvetia Society of Louisville, the number arriving through that city for the year 1881 amounted to 2,100, and will aggregate a much larger number for the entire State. The amount of money brought into the State is very large; but the great gain is in the productive capacity of these people; their habits of thrift, frugality, temperence, and industry; their methods of farming; of taking care of lands, using manures, and expending their earnings in permanent improvements on the lands.

It is a noteworthy fact, that the class of immigrants now coming to the United States is superior to any previous emigration since the establishment of the United States—people of working habits, and generally with means. The following extracts from letters received will give an idea of the class in Great Britain seeking homes in America. I may add, that quite a large correspondence has been established with men of this class. These letters are all on file and accessible in my office.

The first is from a farmer of property, living in the best agricultural district in England:

"With much gratitude, I tender you my best thanks for the continued attention you have so kindly granted me by the newspapers and reports sent, which afford so much information as to your State. I am impressed beyond the customary formality of expressing acknowledgment, for, with due regard to modesty, I cannot refrain from expressing the thrill of surprise I experienced at the unexpected appearance of my sentiments in your local journals, echoing back to me such cordial and welcome assurance for the future. Such encouragement will aid me in inducing others to follow my course, and seek a new home among

*I take this opportunity of expressing my gratitude to the Helvetia Society, and more especially to Mr. J. C. Baumberger, for the very great assistance he has rendered to this Bureau by the untiring and self-sacrificing manner with which he has devoted his time to assisting immigrants, no matter to what nationality they belonged. But for this labor of love so unselfishly bestowed by Mr Baumberger, my labors would have been much greater, and many immigrants would have lacked advice and assistance, which I was often powerless to give. Whilst he has refused compensation, it seems unjust that such valuable services should not be recognized by the State.