

STUDIES OF THE GREAT WEST.

BY CHARLES DUDLEY WARNER.

V.—THREE CAPITALS.

TO one travelling over this vast country, especially the northern and western portions, the superficial impression made is that of uniformity, and even monotony: towns are alike, cities have a general resemblance, State lines are not recognized, and the idea of conformity and centralization is easily entertained. Similar institutions, facility of communication, a disposition to stronger nationality, we say, are rapidly fusing us into one federal mass.

But when we study a State at its centre, its political action, its organization, its spirit, the management of its institutions of learning and of charity, the tendencies, restrictive or liberal, of its legislation, even the tone of social life and the code of manners, we discover distinctions, individualities, almost as many differences as resemblances. And we see—the saving truth in our national life—that each State is a wellnigh indestructible entity, an empire in itself, proud and conscious of its peculiarities, and jealous of its rights. We see that State boundaries are not imaginary lines, made by the geographers, which could be easily altered by the central power. Nothing, indeed, in our whole national development, considering the common influences that have made us, is so remarkable as the difference of the several States. Even on the lines of a common settlement, say from New England and New York, note the differences between northern Ohio, northern Indiana, northern Illinois, Wisconsin, and Minnesota. Or take another line, and see the differences between southern Ohio, southern Indiana, southern Illinois, and northern Missouri. But each State, with its diverse population, has a certain homogeneity and character of its own. We can understand this where there are great differences of climate, or when one is mountainous and the other flat. But why should Indiana be so totally unlike the two States that flank it, in so many of the developments of civilized life or in retarded action; and why should Iowa, in its entire temper and spirit, be so unlike Illinois? One State copies the institutions of another, but there is always something in its life that it does not copy from any other. And the perpetuity of the Union

rests upon the separateness and integrity of this State life. I confess that I am not so much impressed by the magnitude of our country as I am by the wonderful system of our complex government in unity, which permits the freest development of human nature, and the most perfect adaptability to local conditions. I can conceive of no greater enemy to the Union than he who would by any attempt at further centralization weaken the self-dependence, pride, and dignity of a single State. It seems to me that one travels in vain over the United States if he does not learn that lesson.

The State of Illinois is geographically much favored both for agriculture and commerce. With access to the Gulf by two great rivers that bound it on two sides, and communicating with the Atlantic by Lake Michigan, enterprise has aided these commercial advantages by covering it with railways. Stretching from Galena to Cairo, it has a great variety of climate; it is well watered by many noble streams, and contains in its great area scarcely any waste land. It has its contrasts of civilization. In the northern half are the thriving cities; the extreme southern portion, owing in part to a more debilitating, less wholesome, climate, and in part to a less virile, ambitious population, still keeps its "Egyptian" reputation. But the railways have already made a great change in southern Illinois, and education is transforming it. The establishment of a normal school at Carbondale in 1874-5 has changed the aspect of a great region. I am told by the State Superintendent of Education that the contrast in dress, manners, cultivation, of the country crowd which came to witness the dedication of the first building, and those who came to see the inauguration of the new school, twelve years later, was something astonishing.

Passing through the central portion of the State to Springfield, after an interval of many years, let us say a generation, I was impressed with the transformation the country had undergone by tree-planting and the growth of considerable patches of forest. The State is generally prosperous. The farmers have money, some

surplus to spend in luxuries, in the education of their children, in musical instruments, in the adornment of their homes. This is the universal report of the Commercial Travellers, those modern couriers of business and information, who run in swarms to and fro over the whole land. In this respect they always contrast the State with Iowa, which they say has no money, and where trade, to their apprehension, stands still, except in the river towns. They attribute this difference to intermeddling and prohibitory legislation. It seems unaccountable otherwise, for Iowa, with its rolling prairies and park-like timber, loved in the season of birds and flowers, is one of the most fertile and lovely States in the West.

Springfield, which spreads its 30,000 people extensively over a plain on the Sangamon River, is prosperous, and in the season when any place can be agreeable, a beautiful city. The elm grows well in the rich soil, and its many broad, well-shaded streets, with pretty detached houses and lawns, make it very attractive, a delightful rural capital. The large Illinois towns are slowly lifting themselves out of the slough of rich streets, better adapted to crops than to trade; though good material for pavement is nowhere abundant. Springfield has recently improved its condition by paving, mostly with cedar blocks, twenty-five miles of streets. I notice that in some of the Western towns tile pavement is being tried. Manufacturing is increasing—there is a prosperous rolling-mill and a successful watch factory—but the overwhelming interest of the city is that it is the centre of the political and educational institutions—of the life emanating from the State-house.

The State-house is, I believe, famous. It is a big building, a great deal has been spent on it in the way of ornamentation, and it enjoys the distinction of the highest State-house dome in the country—350 feet. It has the merit also of being well placed on an elevation, and its rooms are spacious and very well planned. It is an incongruous pile externally, mixing many styles of architecture, placing Corinthian capitals on Doric columns, and generally losing the impression of a dignified mass in details. Within, it is especially rich in wall casings of beautiful and variegated marbles, each panel exquisite, but all together tending to dissipate any idea of unity of design or sim-

plicity. Nothing whatever can be said for many of the scenes in relief, or the mural paintings (except that they illustrate the history of the State), nor for most of the statues in the corridors, but the decoration of the chief rooms, in mingling of colors and material, is frankly barbarous.

Illinois has the reputation of being slow in matters of education and reform. A day in the State offices, however, will give the visitor an impression of intelligence and vigor in these directions. The office of the State Board of Pharmacy in the Capitol shows a strict enforcement of the law in the supervision of drugs and druggists. Prison management has also most intelligent consideration. The two great penitentiaries, the Southern, at Chester (with about 800 convicts), and the Northern, at Joliet (with about 1600 convicts), call for no special comment. The one at Joliet is a model of its kind, with a large library, and such schooling as is practicable in the system, and is well administered; and I am glad to see that Mr. McClaughry, the warden, believes that incorrigibles should be permanently held, and that grading, the discipline of labor and education, with a parole system, can make law-abiding citizens of many convicts.

In school education the State is certainly not supine in efforts. Out of a State population of about 3,500,000, there were, in 1887, 1,627,841 under twenty-one years, and 1,096,464 between the ages of six and twenty-one. The school age for free attendance is from six to twenty-one; for compulsory attendance, from eight to fourteen. There were 749,994 children enrolled, and 506,197 in daily attendance. Those enrolled in private schools numbered 87,725. There were 2258 teachers in private schools, and 22,925 in public schools; of this latter, 7462 were men and 15,463 women. The average monthly salary of men was \$51 48, and of women \$42 17. The sum available for school purposes in 1887 was \$12,896,515, in an assessed value of taxable property of \$797,752,888. These figures are from Dr. N.W. Edwards, Superintendent of Public Instruction, whose energy is felt in every part of the State.

The State prides itself on its institutions of charity. I saw some of them at Jacksonville, an hour's ride west of Springfield. Jacksonville is a very pret-

ty city of some 15,000, with elm-shaded avenues that suggest but do not rival New Haven—one of those intellectual centres that are a continual surprise to our English friends in their bewildered exploration of our monotonous land. In being the Western centre of Platonic philosophy, it is more like Concord than like New Haven. It is the home of a large number of people who have travelled, who give intelligent attention to art, to literary study in small societies and clubs—its Monday Evening Club of men long antedated most of the similar institutions at the East—and to social problems. I certainly did not expect to find, as I did, water-colors by Turner in Jacksonville, besides many other evidences of a culture that must modify many Eastern ideas of what the West is and is getting to be.

The Illinois College is at Jacksonville. It is one of twenty-five small colleges in the State, and I believe the only one that adheres to the old curriculum, and does not adopt co-education. It has about sixty students in the college proper, and about one hundred and thirty in the preparatory academy. Most of the Illinois colleges have preparatory departments, and so long as they do, and the various sects scatter their energies among so many institutions, the youth of the State who wish a higher education will be obliged to go East. The school perhaps the most vigorous just now is the University of Illinois, at Urbana, a school of agriculture and applied science mainly. The Central Hospital for the Insane (one of three in the State), under the superintendence of Dr. Henry F. Carriel, is a fine establishment, a model of neatness and good management, with over nine hundred patients, about a third of whom do some light work on the farm or in the house. A large conservatory of plants and flowers is rightly regarded as a remedial agency in the treatment of the patients. Here also is a fine school for the education of the blind.

The Institution for the Education of Deaf-Mutes, Dr. Philip H. Gillette, superintendent, is, I believe, the largest in the world, and certainly one of the most thoroughly equipped and successful in its purposes. It has between five hundred and six hundred pupils. All the departments found in many other institutions are united here. The school has a manual train-

ing department; articulation is taught; the art school exhibits surprising results in aptitude for both drawing and painting; and industries are taught to the extent of giving every pupil a trade or some means of support—shoemaking, cabinet-making, printing, sewing, gardening, and baking.

Such an institution as this raises many interesting questions. It is at once evident that the loss of the sense of hearing has an effect on character, moral and intellectual. Whatever may be the education of the deaf-mute, he will remain, in some essential and not easily to be characterized respects, different from other people. It is exceedingly hard to cultivate in them a spirit of self-dependence, or eradicate the notion that society owes them perpetual care and support. The education of deaf-mutes, and the teaching them trades, so that they become intelligent and productive members of society, of course induce marriages among them. Is not this calculated to increase the number of deaf-mutes? Dr. Gillette thinks not. The vital statistics show that consanguineous marriages are a large factor in deaf-muteism; about ten per cent., it is estimated, of the deaf-mutes are the offspring of parents related by blood. Ancestral defects are not always perpetuated in kind; they may descend in physical deformity, in deafness, in imbecility. Deafness is more apt to descend in collateral branches than in a straight line. It is a striking fact in a table of relationships prepared by Dr. Gillette that, while the 450 deaf-mutes enumerated had 770 relationships to other deaf-mutes, making a total of 1220, only twelve of them had deaf-mute parents, and only two of them one deaf-mute parent, the mother of these having been able to hear, and that in no case was the mother alone a deaf-mute. Of the pupils who have left this institution, 251 have married deaf-mutes, and 19 hearing persons. These marriages have been as fruitful as the average, and among them all only sixteen have deaf-mute children; in some of the families having a deaf child there are other children who hear. These facts, says the report, clearly indicate that the probability of deaf offspring from deaf parentage is remote, while other facts may clearly indicate that a deaf person probably has or will have a deaf relation other than a child.

Springfield is old enough to have a historic flavor and social traditions; perhaps it might be called a Kentucky flavor, so largely did settlers from Kentucky determine it. There was a leisurely element in it, and it produced a large number of men prominent in politics and in the law, and women celebrated for beauty and spirit. It was a hospitable society, with a certain tone of "family" that distinguished it from other frontier places, a great liking for the telling of racy stories, and a hearty enjoyment of life. The State has provided a Gubernatorial residence which is at once spacious and pleasant, and is a mansion, with its present occupants, typical in a way of the old *régime* and of modern culture.

To the country at large Springfield is distinguished as the home of Abraham Lincoln to an extent perhaps not fully realized by the residents of the growing capital, with its ever new interests. And I was perhaps unreasonably disappointed in not finding that sense of his personality that I expected. It is, indeed, emphasized by statues in the Capitol and by the great mausoleum in the cemetery—an imposing structure, with an excellent statue in bronze, and four groups, relating to the civil war, of uncommon merit. But this great monumental show does not satisfy the personal longing of which I speak. Nor is the Lincoln residence much more satisfactory in this respect. The plain two-story wooden house has been presented to the State by his son Robert, and is in charge of a custodian. And although the parlor is made a show-room and full of memorials, there is no atmosphere of the man about it. On Lincoln's departure for Washington the furniture was sold and the house rented, never to be again occupied by him. There is here nothing of that personal presence that clings to the Hermitage, to Marshfield, to Mount Vernon, to Monticello. Lincoln was given to the nation, and—a frequent occurrence in our uprooting business life—the home disappeared. Lincoln was honored and beloved in Springfield as a man, but perhaps some of the feeling toward him as a party leader still lingers, although it has disappeared almost everywhere else in the country. Nowhere else was the personal partisanship hotter than in this city, and it is hardly to be expected that political foes in this generation should quite comprehend the elevation of

Lincoln, in the consenting opinion of the world, among the greatest characters of all ages. It has happened to Lincoln that every year and a more intimate knowledge of his character have added to his fame and to the appreciation of his moral grandeur. There is a natural desire to go to some spot pre-eminently sacred to his personality. This may be his birth-place. At any rate, it is likely that before many years Kentucky will be proud to distinguish in some way the spot where the life began of the most illustrious man born in its borders.

When we come to the capital of Indiana we have, in official language, to report progress. One reason assigned for the passing of emigrants through Indiana to Illinois was that the latter was a prairie country, more easily subdued than the more wooded region of Indiana. But it is also true that the sluggish, illiterate character of its early occupants turned aside the stream of Western emigration from its borders. There has been a great deal of philosophic speculation upon the acknowledged backwardness of civilization in Indiana, its slow development in institutions of education, and its slow change in rural life, compared with its sister States. But this concerns us less now than the awakening which is visible at the capital and in some of the northern towns. The forests of hard timber which were an early disadvantage are now an important element in the State industry and wealth. Recent developments of coal-fields and the discovery of natural gas have given an impetus to manufacturing, which will powerfully stimulate agriculture and traffic, and open a new career to the State.

Indianapolis, which stood still for some years in a reaction from real estate speculation, is now a rapidly improving city, with a population of about 125,000. It is on the natural highway of the old National Turnpike, and its central location in the State, in the midst of a rich agricultural district, has made it the centre of fifteen railway lines, and of active freight and passenger traffic. These lines are all connected for freight purposes by a belt road, over which pass about 5000 freight cars daily. This belt road also does an enormous business for the stock-yards, and its convenient line is rapidly filling up with manufacturing establishments. As a con-

sequence of these facilities the trade of the city in both wholesale and retail houses is good and increasing. With this increase of business there has been an accession of banking capital. The four national and two private banks have an aggregate capital of about three millions, and the Clearing-house report of 1887 showed a business of about one hundred millions, an increase of nearly fifty per cent. over the preceding year. But the individual prosperity is largely due to the building and loan associations, of which there are nearly one hundred, with an aggregate capital of seven millions, the loans of which exceed those of the banks. These take the place of savings-banks, encourage the purchase of homesteads, and are preventives of strikes and labor troubles in the factories.

The people of Indianapolis call their town a Park City. Occupying a level plain, its streets (the principal ones with a noble width of ninety feet) intersect each other at right angles; but in the centre of the city is a Circle Park of several acres, from which radiate to the four quarters of the town avenues ninety feet broad that relieve the monotony of the right lines. These streets are for the most part well shaded, and getting to be well paved, lined with pleasant but not ambitious residences, so that the whole aspect of the city is open and agreeable. The best residences are within a few squares of the most active business streets, and if the city has not the distinction of palaces, it has fewer poor and shabby quarters than most other towns of its size. In the Circle Park, where now stands a statue of Governor Morton, is to be erected immediately the Soldiers' Monument, at a cost of \$250,000.

The city is fortunate in its public buildings. The County Court-house (which cost \$1,600,000) and City Hall are both fine buildings; in the latter are the city markets, and above, a noble auditorium with seats for 4000 people. But the State Capitol, just finished within the appropriation of \$2,000,000, is pre-eminent among State Capitols in many respects. It is built of the Bedford limestone, one of the best materials both for color and endurance found in the country. It follows the American plan of two wings and a dome; but it is finely proportioned; and the exterior, with rows of graceful Corinthian columns above the basement story, is altogether pleasing. The interior is spa-

cious and impressive, the Chambers fine, the furnishing solid and in good taste, with nowhere any over-ornamentation or petty details to mar the general noble effect. The State Library contains, besides the law books, about 20,000 miscellaneous volumes.

When Matthew Arnold first came to New York the place in the West about which he expressed the most curiosity was Indianapolis; that he said he must see, if no other city. He had no knowledge of the place, and could give no reason for his preference except that the name had always had a fascination for him. He found there, however, a very extensive book-store, where his own works were sold in numbers that pleased and surprised him. The shop has a large miscellaneous stock, and does a large jobbing and retail business, but the miscellaneous books dealt in are mostly cheap reprints of English works, with very few American copyright books. This is a significant comment on the languishing state of the market for works of American authors in the absence of an international copyright law.

The city is not behind any other in educational efforts. In its five free public libraries are over 70,000 volumes. The city has a hundred churches and a vigorous Young Men's Christian Association, which cost \$75,000. Its private schools have an excellent reputation. There are 20,000 children registered of school age, and 11,000 in daily attendance in twenty-eight free-school houses. In methods of efficacy these are equal to any in the Union, as is shown by the fact that there are reported in the city only 325 persons between the ages of six and twenty-one unable to read and write. The average cost of instruction for each pupil is \$19 64 a year. In regard to advanced methods and manual training, Indianapolis schools claim to be pioneers.

The latest reports show educational activity in the State as well as in the capital. In 1886 the revenues expended in public schools were about \$5,000,000. The State supports the Indiana University at Bloomington, with about 300 students, the Agricultural College at Lafayette, with over 300, and a Normal School at Terre Haute, with an attendance of about 500. There are, besides, seventeen private colleges and several other normal schools. In 1886 the number of school-children en-

rolled in the State was 506,000, of whom 346,000 were in daily attendance. To those familiar with Indiana these figures show a greatly increased interest in education.

Several of the State benevolent institutions are in Indianapolis: a hospital for the insane, which cost \$1,200,000, and accommodates 1600 patients; an asylum for the blind, which has 132 pupils; and a school for deaf-mutes, which cost \$500,000, and has about 400 scholars. The novel institution, however, that I saw at Indianapolis is a Reformatory for Women and Girls, controlled entirely by women. The board of trustees are women, the superintendent, physician, and keepers are women. In one building, but in separate departments, were the female convicts, 42 in number, several of them respectable-looking elderly women who had killed their husbands, and about 150 young girls. The convicts and the girls—who are committed for restraint and reform—never meet except in chapel, but it is more than doubtful if it is wise for the State to subject girls to even this sort of contiguity with convicts, and to the degradation of penitentiary suggestions. The establishment is very neat and well ordered and well administered. The work of the prison is done by the convicts, who are besides kept employed at sewing and in the laundry. The girls in the reformatory work half a day, and are in school the other half.

This experiment of the control of a State-prison by women is regarded as doubtful by some critics, who say that women will obey a man when they will not obey a woman. Female convicts, because they have fallen lower than men, or by reason of their more nervous organization, are commonly not so easily controlled as male convicts, and it is insisted that they indulge in less "tantrums" under male than under female authority. This is denied by the superintendent of this prison, though she has incorrigible cases who can only be controlled by solitary confinement. She has daily religious exercises, Bible reading and exposition, and a Sunday-school; and she doubts if she could control the convicts without this religious influence. It not only has a daily quieting effect, but has resulted in several cases in "conversion." There are in the institution several girls and women of color, and I asked the su-

perintendent if the white inmates exhibited any prejudice against them on account of their color. To my surprise, the answer was that the contrary is the case. The whites look up to the colored girls, and seem either to have a respect for them or to be fascinated by them. This surprising statement was supplemented by another, that the influence of the colored girls on the whites is not good; the white girl who seeks the company of the colored girl deteriorates, and the colored girl does not change.

Indianapolis, which is attractive by reason of a climate that avoids extremes, bases its manufacturing and its business prosperity upon the large coal beds lying to the west and south of it, the splendid and very extensive quarries of Bedford limestone contiguous to the coal-fields, the abundant supply of various sorts of hard wood for the making of furniture, and the recent discovery of natural gas. The gas-field region, which is said to be very much larger than any other in the country, lies to the northwest, and comes within eight miles of the city. Pipes are already laid to the city limits, and the whole heating and manufacturing of the city will soon be done by the gas. I saw this fuel in use in a large and successful pottery, where are made superior glazed and encaustic tiles, and nothing could be better for the purpose. The heat in the kilns is intense; it can be perfectly regulated; as fuel the gas is free from smoke and smut, and its cost is merely nominal. The excitement over this new agent is at present extraordinary. The field where it has been found is so extensive as to make the supply seem inexhaustible. It was first discovered in Indiana at Eaton, in Delaware County, in 1886. From January 1, 1887, to February, 1888, it is reported that 1000 wells were opened in the gas territory, and that 245 companies were organized for various manufactures, with an aggregate capital of \$25,000,000. Whatever the figures may be, there are the highest expectations of immense increase of manufactures in Indianapolis and in all the gas region. Of some effects of this revolution in fuel we may speak when we come to the gas wells of Ohio.

I had conceived of Columbus as a rural capital, pleasant and slow, rather a village than a city. I was surprised to find a city

of 80,000 people, growing with a rapidity astonishing even for a Western town, with miles of prosperous business blocks (High Street is four miles long), and wide avenues of residences extending to suburban parks. Broad Street, with its four rows of trees and fine houses and beautiful lawns, is one of the handsomest avenues in the country, and it is only one of many that are attractive. The Capitol Square, with several good buildings about it, makes an agreeable centre of the city. Of the Capitol building not much is to be said. The exterior is not wholly bad, but it is surmounted by a truncated something that is neither a dome nor a revolving turret, and the interior is badly arranged for room, light, and ventilation. Space is wasted, and many of the rooms, among them the relic-room and the flag-room, are inconvenient and almost inaccessible. The best is the room of the Supreme Court, which has attached a large law library. The general State Library contains about 54,000 volumes, with a fair but not large proportion of Western history.

Columbus is a city of churches, of very fine public schools, of many clubs, literary and social, in which the intellectual element predominates, and of an intelligent, refined, and most hospitable society. Here one may study the educational and charitable institutions of the State, many of the more important of which are in the city, and also the politics. It was Ohio's hard fate to be for many years an "October State," and the battle-field and corruption-field of many outside influences. This no doubt demoralized the politics of the State, and lowered the tone of public morality. With the removal of the cause of this decline, I believe the tone is being raised. Recent trials for election frauds, and the rehabilitation of the Cincinnati police, show that a better spirit prevails.

Ohio is growing in wealth as it is in population, and is in many directions an ambitious and progressive State. Judged by its institutions of benevolence and of economies, it is a leading State. No other State provides more liberally for its unfortunates, in asylums for the insane, the blind, the deaf-mutes, the idiotic, the young waifs and strays, nor shows a more intelligent comprehension of the legitimate functions of a great commonwealth, in the creation of boards of education and of charities and of health, in a State inspection of workshops and factories, in estab-

lishing bureaus of meteorology and of forestry, and a fish commission, and an agricultural experiment station. The State has thirty-four colleges and universities, a public-school system which has abolished distinctions of color, and which by the reports is as efficient as any in the Union. Cincinnati, the moral tone of which, the Ohio people say, is not fairly represented by its newspapers, is famous the world over for its cultivation in music and its progress in the fine and industrial arts. It would be possible for a State to have and be all this and yet rise in the general scale of civilization only to a splendid mediocrity, without the higher institutions of pure learning, and without a very high standard of public morality. Ohio is in no less danger of materialism, with all its diffused intelligence, than other States. There is a recognizable limit to what a diffused level of education, say in thirty-four colleges, can do for the higher life of a State. I heard an address in the Capitol by ex-President Hayes on the expediency of adding a manual-training school to the Ohio State University at Columbus. The comment of some of the legislators on it was that we have altogether too much book-learning; what we need is workshops in our schools and colleges. It seems to a stranger that whatever first-class industrial and technical schools Ohio needs, it needs more the higher education, and the teaching of philosophy, logic, and ethics. In 1886 Governor Foraker sent a special message to the Legislature pointing out the fact that notwithstanding the increase of wealth in the State, the revenue was inadequate to the expenditure, principally by reason of the undervaluation of taxable property (there being a yearly decline in the reported value of personal property), and a fraudulent evasion of taxes. There must have been a wide insensibility to the wrong of cheating the State to have produced this state of things, and one cannot but think that it went along with the low political tone before mentioned. Of course Ohio is not a solitary sinner among States in this evasion of duty, but she helps to point the moral that the higher life of a State needs a great deal of education that is neither commercial nor industrial nor simply philanthropic.

It is impossible and unnecessary for the purposes of this paper to speak of many of the public institutions of the State, even of those in the city. But edu-

cators everywhere may study with profit the management of the public schools under the City Board of Education, of which Mr. R. W. Stevenson is superintendent. The High-School, of over 600 pupils, is especially to be commended. Manual training is not introduced into the schools, and the present better sentiment is against it; but its foundation, drawing, is thoroughly taught from the primaries up to the High-School, and the exhibits of the work of the schools of all grades in modelling, drawing, and form and color studies, which were made last year in New York and Chicago, gave these Columbus schools a very high rank in the country. Any visitor to them must be impressed with the intelligence of the methods employed, the apprehension of modern notions, and also the conservative spirit of common-sense.

The Ohio State University has an endowment from the State of over half a million dollars, and a source of ultimate wealth in its great farm and grounds, which must increase in value as the city extends. It is a very well equipped institution for the study of the natural sciences and agriculture, and might easily be built up into a university in all departments, worthy of the State. At present it has 335 students, of whom 150 are in the academic department, 41 in special practical courses, and 143 in the preparatory school. All the students are organized in companies, under an officer of the United States, for military discipline; the uniform, the drill, the lessons of order and obedience, are invaluable in the transforming of carriage and manners. The university has a museum of geology which ranks among the important ones of the country. It is a pity that a consolidation of other State institutions with this cannot be brought about.

The Ohio Penitentiary at Columbus is an old building, not in keeping with the modern notions of prison construction. In 1887 it had about 1300 convicts, some 100 less than in the preceding year. The management is subject to political changes, and its officers have to be taken from various parts of the State at the dictation of political workers. Under this system the best management is liable to be upset by an election. The special interest in the prison at this time was in the observation of the working of the parole law. Since the passage of the act in

May, 1885, 283 prisoners have been paroled, and while several of the convicts have been returned for a violation of parole, nearly the whole number are reported as law-abiding citizens. The managers are exceedingly pleased with the working of the law; it promotes good conduct in the prison, and reduces the number in confinement. The reduction of the number of convicts in 1887 from the former year was ascribed partially to the passage of the general sentence law in 1884, and the habitual crimes act in 1885. The criminals dread these laws, the first because it gives no fixed time to build their hopes upon, but all depends upon their previous record and good conduct in prison, while the latter affects the incorrigible, who are careful to shun the State after being convicted twice, and avoid imprisonment for life. The success of these laws and the condition of the State finances delay the work on the Intermediate Prison, or Reformatory, begun at Mansfield. This Reformatory is intended for first offenders, and has the distinct purpose of prevention of further deterioration, and of reformation by means of the discipline of education and labor. The success of the tentative laws in this direction, as applied to the general prisons, is, in fact, a strong argument for the carrying out of the Mansfield scheme.

There cannot be a more interesting study of the "misfits" of humanity than that offered in the Institution for Feeble-minded Youth, under the superintendence of Dr. G. A. Doren. Here are 715 imbeciles in all stages of development from absolute mental and physical incapacity. There is scarcely a problem that exists in education, in the relation of the body and mind, in the inheritance of mental and physical traits, in regard to the responsibility for crime, in psychology or physiology, that is not here illustrated. It is the intention of the school to teach the idiot child some trade or occupation that will make him to some degree useful, and to carry him no further than the common branches in learning. The first impression, I think, made upon a visitor is the almost invariable physical deformity that attends imbecility—ill-proportioned, distorted bodies, dwarfed, misshapen gelatinoids, with bones that have no stiffness. The next impression is the preponderance of the animal nature, the persistence of the lower pas-

sions, and the absence of moral qualities in the general immaturity. And perhaps the next impression is of the extraordinary effect that physical training has in awakening the mind, and how soon the discipline of the institution creates the power of self-control. From almost blank imbecility and utter lack of self-restraint the majority of these children, as we saw them in their school-rooms and workshops, exhibited a sense of order, of entire decency, and very considerable intelligence. It was demonstrated that most imbeciles are capable of acquiring the rudiments of an education and of learning some useful occupation. Some of the boys work on the farm, others learn trades. The boys in the shoe-shop were making shoes of excellent finish. The girls do plain sewing and house-work apparently almost as well as girls of their age outside. Two or three things that we saw may be mentioned to show the scope of the very able management and the capacities of the pupils. There was a drill of half a hundred boys and girls in the dumb-bell exercise, to music, under the leadership of a pupil, which in time, grace, and exact execution of complicated movements would have done credit to any school. The institution has two bands, one of brass and one of strings, which perform very well. The string band played for dancing in the large amusement hall. Several hundred children were on the floor dancing cotillions, and they went through the variety of changes not only in perfect time and decorum, but without any leader to call the figures. It would have been a remarkable performance for any children. There were many individual cases of great and deplorable interest. Cretins, it was formerly supposed, were only born in mountainous regions. There are three here born in Ohio. There were five imbeciles of what I should call the ape type, all of one Ohio family. Two of them were the boys exhibited some years ago by Barnum as the Aztec children—the last of an extinct race. He exhibited them as a boy and a girl. When they had grown a little too large to show as children, or the public curiosity was satisfied about the extinct race, he exhibited them as wild Australians.

The humanity of so training these imbeciles that they can have some enjoyment of life, and be occasionally of some use to their relations, is undeniable. But

since the State makes this effort in the survival of the unfittest, it must go further and provide a permanent home for them. The girls who have learned to read and write and sew and do house-work, and are of decent appearance, as many of them are, are apt to marry when they leave the institution. Their offspring are invariably idiots. I saw in this school the children of mothers who had been trained here. It is no more the intention of the State to increase the number of imbeciles than it is the number of criminals. Many of our charitable and penal institutions at present do both.

I should like to approach the subject of Natural Gas in a proper spirit, but I have neither the imagination nor the rhetoric to do justice to the expectations formed of it. In the restrained language of one of the inhabitants of Findlay, its people "have caught the divine afflatus which came with the discovery of natural gas." If Findlay had only natural gas, "she would be the peer, if not the superior, of any municipality on earth"; but she has much more, "and in all things has no equal or superior between the oceans and the lakes and the gulf, and is marching on to the grandest destiny ever prepared for any people, in any land, or in any period, since the morning stars first sang together, and the flowers in the garden of Eden budded and blossomed for man." In fact, "this she has been doing in the past two years in the grandest and most satisfactory way, and that she will continue to progress is as certain as the stars that hold their midnight revel around the throne of Omnipotence."

Notwithstanding this guarded announcement, it is evident that the discovery of natural gas has begun a revolution in fuel, which will have permanent and far-reaching economic and social consequences, whether the supply of gas is limited or inexhaustible.

Those who have once used fuel in this form are not likely to return to the crude and wasteful heating by coal. All the cities and large towns west of the Alleghanies are made disagreeable by bituminous coal smoke. The extent of this annoyance and its detraction from the pleasure of daily living cannot be exaggerated. The atmosphere is more or less vitiated, and the sky obscured, houses, furniture, clothing, are dirty, and clean lin-

en and clean hands and face are not expected. All this is changed where gas is used for fuel. The city becomes cheerful, and the people can see each other. But this is not all. One of the great burdens of our Northern life, fire building and replenishing, disappears, house-keeping is simplified, the expense of servants reduced, cleanliness restored. Add to this that in the gas regions the cost of fuel is merely nominal, and in towns distant some thirty or forty miles it is not half that of coal. It is easy to see that this revolution in fuel will make as great a change in social life as in manufacturing, and that all the change may not be agreeable. This natural gas is a very subtle fluid, somewhat difficult to control, though I have no doubt that invention will make it as safe in our houses as illuminating gas is. So far as I have seen its use, the heat from it is intense and withering. In a closed stove it is intolerable; in an open grate, with a simulated pile of hard coal or logs, it is better, but much less agreeable than soft coal or wood. It does not, as at present used, promote a good air in the room, and its intense dryness ruins the furniture. But its cheapness, convenience, and neatness will no doubt prevail, and we are entering upon a gas age, in which, for the sake of progress, we shall doubtless surrender something that will cause us to look back to the more primitive time with regret. If the gas wells fail, artificial gas for fuel will doubtless be manufactured.

I went up to the gas-fields of northern Ohio in company with Professor Edward Orton, the State Geologist, who has made a study of the subject, and pretty well defined the fields of Indiana and Ohio. The gas is found at a depth of between 1100 and 1200 feet, after passing through a great body of shale and encountering salt-water, in a porous Trenton limestone. The drilling and tubing enter this limestone several feet to get a good holding. This porous limestone holds the gas like a sponge, and it rushes forth with tremendous force when released. It is now well settled that these are reservoirs of gas that are tapped, and not sources of perpetual supply by constant manufacture. How large the supply may be in any case cannot be told, but there is a limit to it. It can be exhausted, like a vein of coal. But the fields are so large, both in Indiana and Ohio, that it seems probable that by sink-

ing new wells the supply will be continued for a long time. The evidence that it is not inexhaustible in any one well is that in all in which the flow of gas has been tested at intervals the force of pressure is found to diminish. For months after the discovery the wells were allowed to run to waste, and billions of feet of gas were lost. A better economy now prevails, and this wastefulness is stopped. The wells are all under control, and large groups of them are connected by common service pipes. The region about Fostoria is organized under the Northwestern Gas Company, and controls a large territory. It supplies the city of Toledo, which uses no other fuel, through pipes thirty miles long, Fremont, and other towns. The loss per mile in transit through the pipes is now known, so that the distance can be calculated at which it will pay to send it. I believe that this is about fifty to sixty miles. The gas when it comes from the well is about the temperature of 32° Fahr., and the common pressure is 400 pounds to the square inch. The velocity with which it rushes, unchecked, from the pipe at the mouth of the well may be said to be about that of a minie-ball from an ordinary rifle. The Ohio area of gas is between 2000 and 3000 square miles. The claim for the Indiana area is that it is 20,000 square miles, but the geologists make it much less.

The speculation in real estate caused by this discovery has been perhaps without parallel in the history of the State, and, as is usual in such cases, it is now in a lull, waiting for the promised developments. But these have been almost as marvellous as the speculation. Findlay was a sleepy little village in the black swamp district, one of the most backward regions of Ohio. For many years there had been surface indications of gas, and there is now a house standing in the city which used gas for fuel forty years ago. When the first gas well was opened, ten years ago, the village had about 4500 inhabitants. It has now probably 15,000, it is a city, and its limits have been extended to cover an area six miles long by four miles wide. This is dotted over with hastily built houses, and is rapidly being occupied by manufacturing establishments. The city owns all the gas wells, and supplies fuel to factories and private houses at the simple cost of maintaining the service-pipes. So rapid has been the growth and the demand for

gas that there has not been time to put all the pipes underground, and they are encountered on the surface all over the region. The town is pervaded by the odor of the gas, which is like that of petroleum, and the traveller is notified of his nearness to the town by the smell before he can see the houses. The surface pipes, hastily laid, occasionally leak, and at these weak places the gas is generally ignited in order to prevent its tainting the atmosphere. This immediate neighborhood has an oil field contiguous to the gas, plenty of limestone (the kilns are burned by gas), good building stone, clay fit for making bricks and tiles, and superior hard-wood forests. The cheap fuel has already attracted here manufacturing industries of all sorts, and new plants are continually made. I have a list of over thirty different mills and factories which are either in full operation or getting under way. Among the most interesting of these are the works for making window-glass and table glass. The superiority of this fuel for the glass furnaces seems to be admitted.

Although the wells about Findlay are under control, the tubing is anchored, and the awful force is held under by gates and levers of steel, it is impossible to escape a feeling of awe in this region at the subterranean energies which seem adequate to blow the whole country heavenward. Some of the wells were opened for us. Opening a well is unscrewing the service-pipe and letting the full force of the gas issue from the pipe at the mouth of the well. When one of these wells is thus opened the whole town is aware of it by the roaring and the quaking of the air. The first one exhibited was in a field a mile and a half from the city. At the first freedom from the screws and clamps the gas rushed out in such density that it was visible. Although we stood several rods from it, the roar was so great that one could not make himself heard shouting in the ear of his neighbor. The geologist stuffed cotton in his ears and tied a shawl about his head, and, assisted by the chemist, stood close to the pipe to measure the flow. The chemist, who had not taken the precaution to protect himself, was quite deaf for some time after the experiment. A four-inch pipe, about sixty feet in length, was then screwed on, and the gas ignited as it issued from the end on the ground. The roaring was as before. For several feet

from the end of the tube there was no flame, but beyond was a sea of fire sweeping the ground and rioting high in the air—billows of red and yellow and blue flame, fierce and hot enough to consume everything within reach. It was an awful display of power.

We had a like though only a momentary display at the famous Karg well, an eight-million-foot well. This could only be turned on for a few seconds at a time, for it is in connection with the general system. If the gas is turned off, the fires in houses and factories would go out, and if it were turned on again without notice, the rooms would be full of gas, and an explosion follow an attempt to relight it. This danger is now being removed by the invention of an automatic valve in the pipe supplying each fire, which will close and lock when the flow of gas ceases, and admit no more gas until it is opened. The ordinary pressure for house service is about two pounds to the square inch. The Karg well is on the bank of the creek, and the discharge-pipe through which the gas (though not in its full force) was turned for our astonishment extends over the water. The roar was like that of Niagara; all the town shakes when the Karg is loose. When lighted, billows of flame rolled over the water, brilliant in color and fantastic in form, with a fury and rage of conflagration enough to strike the spectator with terror. I have never seen any other display of natural force so impressive as this. When this flame issues from an upright pipe, the great mass of fire rises eighty feet into the air, leaping and twisting in fiendish fury. For six weeks after this well was first opened its constant roaring shook the nerves of the town, and by night its flaming torch lit up the heaven and banished darkness. With the aid of this new agent anything seems possible.

The feverishness of speculation will abate; many anticipations will not be realized. It will be discovered that there is a limit to manufacturing, even with fuel that costs next to nothing. The supply of natural gas no doubt has its defined limits. But nothing seems more certain to me than that gas, manufactured if not natural, is to be the fuel of the future in the West, and that the importance of this economic change in social life is greater than we can at present calculate.

ANNIE KILBURN.*

BY WILLIAM DEAN HOWELLS.

VI.

TOWARD five o'clock Annie was interrupted by a knock at her door, which ought to have prepared her for something unusual, for it was Mrs. Bolton's habit to come and go without knocking. But she called "Come in!" without rising from her letter, and Mrs. Bolton entered with a stranger. The little girl clung to his forefinger, pressing her head against his leg, and glancing shyly up at Annie. She sprang up, and, "This is Mr. Peck, Miss Kilburn," said Mrs. Bolton.

"How do you do?" said Mr. Peck, taking the hand she gave him.

He was gaunt, without being tall, and his clothes hung loosely about him, as if he had fallen away in them since they were made. His face was almost the face of the caricature American: deep, slightly curved vertical lines enclosed his mouth in their parenthesis; a thin, dust-colored beard fell from his cheeks and chin; his upper lip was shaven. But instead of the slight frown of challenge and self-assertion which marks this face in the type, his large blue eyes, set near together, gazed sadly from under a smooth forehead, extending itself well up toward the crown, where his dry hair dropped over it.

"I am very glad to see you, Mr. Peck," said Annie; "I've wanted to tell you how glad I am that you found shelter in my old home when you first came to Hatboro'."

Mr. Peck's trousers were short and badly kneed, and his long coat hung formlessly from his shoulders; she involuntarily took a patronizing tone toward him which was not habitual with her.

"Thank you," he said, with the dry, serious voice which seemed the fit vocal expression of his presence; "I have been afraid that it seemed like an intrusion to you."

"Oh, not the least," retorted Annie. "You were very welcome. I hope you're comfortably placed where you are now?"

"Quite so," said the minister.

"I'd heard so much of your little girl from Mrs. Bolton, and her attachment to the house, that I ventured to send for her to-day. But I believe I gave her rather

a bad quarter of an hour, and that she liked the place better under Mrs. Bolton's *régime*."

She expected some deprecatory expression of gratitude from him, which would relieve her of the lingering shame she felt for having managed so badly, but he made none.

"It was my fault. I'm not used to children, and I hadn't taken the precaution to ask her name—"

"Her name is Idella," said the minister.

Annie thought it very ugly, but, with the intention of saying something kind, she said, "What a quaint name!"

"It was her mother's choice," returned the minister. "Her own name was Ella, and my mother's name was Ida; she combined the two."

"Oh!" said Annie. She abhorred those made-up names in which the New England country people sometimes indulge their fancy, and Idella struck her as a particularly repulsive invention; but she felt that she must not visit the fault upon the little creature. "Don't you think you could give me another trial some time, Idella?" She stooped down and took the child's unoccupied hand, which she let her keep, only twisting her face away to hide it in her father's pantaloons leg.

"Come now, won't you give me a forgiving little kiss?" Idella looked round, and Annie made bold to gather her up.

Idella broke into a laugh, and took Annie's cheeks between her hands.

"Well, I declare!" said Mrs. Bolton. "You never can tell what that child will do next."

"I never can tell what I will do next myself," said Annie. She liked the feeling of the little, warm, soft body in her arms, against her breast, and it was flattering to have triumphed where she had seemed to fail so desperately. They had all been standing, and she now said, "Won't you sit down, Mr. Peck?" She added, by an impulse which she instantly thought ill-advised, "There is something I would like to speak to you about."

"Thank you," said Mr. Peck, seating himself beyond the stove. "We must be getting home before a great while. It is nearly tea-time."

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