The striking importance of the projected railway, both from a political and civilizing aspect, attracted long ago the attention of the whole civilized world. Unfortunately, it has not been possible hitherto to study at all deeply the various conflicting interests, owing to the absence of a suitable review of the mass of literature dealing with the region of Asia Minor. But German thoroughness has risen to the occasion, and this want has been supplied by the publication by Herr Siegmund Schneider of a work entitled "The German Bagdad Railway and the Projected Bridging of the Bosphorus: Their Importance to International Trade and Intercourse." Herr Schneider has examined thoroughly both German and foreign literature dealing with the subject. He lives in Turkey, and is able to depict the state of affairs in the East from his own observation. It is quite impossible to deal at length with this most interesting work, and we must confine ourselves to referring to the commercial and political aspects involved in the construction of the railway.

The Bagdad Railway will be a variant of the primeval trade routes that led to the Indies. Far back in the beginnings of history the "Kings' Road" led from Susa and Sardes across almost the whole of Asia Minor. This artificial road, laid down by Persian satraps, formed for fifteen centuries the connecting link between Europe and the Indies. It was only when the civilization of this link in the intercourse between two continents came to nought, as the result of great historical catastrophes, that the commercial intercourse forsook its high roads, and the nations of the Western World then began to trade by sea with the East Indies. For three centuries the route mapped out by Vasco de Gama to the Indies was followed, until the route thither was changed for the third time when Lesseps dug the Suez Canal. Now, thirty years after the completion of that great work, a new direction bids fair to be given to international commerce by the realization of a project which has been entertained for the last seventy years. Even in 1838 Von Moltke advocated resuming the restoration of the overland route across Asia Minor to India by reviving to new life the old Persian "Kings' highroads" by the introduction of railways, and the projected Bagdad Railway will really follow the route taken by these roads of antiquity.

The opening out of Asia Minor will bring about a revolution in the markets of the world. At this moment the Anatolian railways export 250,000 tons of cereals, 100,000 tons of rock salt, and 40,000 tons of wool; in return they import 9,500 tons of iron and manufactured goods from Germany, 6,000 tons of petroleum from Russia, and 4,500 tons of Austrian sugar. Turkey's exports in breadstuffs are simply a bagatelle compared with its real and undeveloped powers of production. Of all corn-producing countries Turkey has perhaps the greatest chance of coming to the front, and thereby competing with the United States in supplying Europe. This prospect holds good also with regard to the production of Turkish cotton. In this respect Germany is especially interested, seeing that it now pays £1,500,000 yearly for imported raw cotton, and is always liable to have its supplies cut off, as was the case during the American civil war of 1861-62. These prospects have a very enticing sound, yet they can scarcely be made the basis for an undertaking which will involve an expenditure of £17,500,000, when it is remembered that the entire population of the district in question stands so greatly in need of the simplest forms of modern civilization. Herr Schneider is equally optimistic in comparing the naphtha deposits of Babylonia with those of the United States and Russia, although he knows full well that the naphtha beds in Asia Minor have neither been explored nor estimated. Even if the question arose of working the naphtha deposits with a view to procuring a supply of liquid fuel, then it may be claimed that Asia Minor, unlike Russia, does not possess the factories, railways and steamers which by their consumption of naphtha as fuel, would result in the oil fetching a very high price.

The Russian press has viewed this German project with ill-disguised alarm, for this activity on the part of Germany has forestalled the slow and sure designs of Russia with regard to Asia Minor. It is, therefore, not surprising that the Russian press should predict a rude awakening for Germany in its endeavor to "make its way inch by inch through the never-ending thick wall of indolence, slothfulness and stupidity which Turkish rule has raised in a land which formerly was so flourishing." At the same time, Russian experts admit that the Bagdad Railway will occupy an important position among the great railways of the world, if by its means a portion of the through communication with India can be included in "the Russo-Persian railway combination." This suggestion on Russia's part clearly amounts to an offer to accept the inevitable on condition that Germany will agree to place a section of this new overland route to India under Russian control. This, of course, is a roundabout way of trying to paralyze the immense advantage that must in time accrue to Great Britain so soon as the Bagdad Railway shall have shortened still more the overland journey between London and Bombay. This development of German enterprise in Asia Minor comes at a most inopportune moment for Russia. The financial condition of the latter country is not such as to permit the Imperial authorities to pursue their project of opening up Persia by a network of railways which, being connected with the Trans-Caucasus Railway, would carry Russian influence into the heart of the Shah's kingdom, and give Russia that long desired "window on the Indian Ocean." Nevertheless, a proposal was recently made in the Russian press that the Trans-Caucasus Railway should be extended from Tiflis in a southwest direction and across Armenia, with a view to "tapping" the German Bagdad Railway at Diarbekr. The chief feature of the Bagdad Railway is the fact that its construction will create a German "sphere of influence" in Asia Minor, for German settlers are bound to flock into that region in obedience to the desire expressed by the German Emperor during his tour in Palestine, that his subjects will set an example of activity to the Mohammedans, and thereby assist in awakening Asia Minor to a new life. Thus, the prosaic locomotive whistle is destined to echo through the desert places of the cradle of the human race, and to awaken the land from its sleep of centuries.

A RAILROAD THROUGH GREAT SALT LAKE.

By KENNETH C. KERR, in The Railway Age.

EARLY last summer scientific and engineering circles were deeply interested in the announcement that surveys had been ordered by the Southern Pacific for a line across the Great Salt Lake. The engineering possibilities were appreciated in a measure, but as the features of the lake itself are so little known the situation was not fully understood or the extent of the project grasped. The aim of the company is to eliminate the long, expensive grades around the north end of the lake, at the same time reducing the distance and curvature, and for this purpose a competent corps of engineers was ordered into the field, or, more properly speaking, into the lake, a year ago. Several steam launches were used and a most careful reconnaissance of the famous body of water followed. This resulted in a preliminary survey from Lucin to Ogden, and upon this preliminary survey was worked up into a tangible form an excellent line between the two places. The preliminary work was attended by hardships which can only be appreciated by those who have an intimate knowledge of the lake. In April one of the launches was wrecked and the crew barely escaped.

In July the Ogden & Lucin Railroad Company was

PROPOSED SALT LAKE CUT-OFF.

incorporated by Southern Pacific attorneys. The articles were filed at Salt Lake City. In the meanwhile the surveys were continued, revised and improved and the right of way at the Ogden end secured. At present the surveys are completed and in the hands of Chief Engineer Hood; the right of way has been secured and material is being unloaded at various points between Lucin and Ogden, a large number of pile drivers being included in the equipment. Some weeks ago it was intimated that the recent change in ownership of Southern Pacific stock would delay this work, but officials of the company think this will not be the case. They are rather of the opinion that the broad-minded New York purchasers who have expended millions in Wyoming to rectify the Union Pacific line will hurry, rather than delay, the completion of a line which, although expensive at first cost, will prove an economy in the end.

The distance from Ogden to Lucin over the present route is 146 miles. By the lake cut-off the distance is approximately 107 miles, a saving of 39 miles. The distance by stations on the cut-off are approximately as follows: Lucin to Strong's Knob, 58 miles, mostly over the north end of the Great American Desert; Strong's Knob to the Promontory, 20 miles, which requires a trestle; at Promontory, 2 miles of rock and earthwork; east side of the Promontory to the east shore, 10 miles; shore to Ogden, 17 miles.

These figures can only be approximated on account

THE SALT LAKE CUT-OFF—COMPARATIVE PROFILE OF OLD AND NEW LINE.

of the fact that the heavy rockwork at Strong's Knob and at the end of the Promontory may cause the surveys to be changed. The lake also is subject to rise and fall. It is to-day lower than ever before in its history, and all surveys have been made during low water. Local scientists declare that it will not rise again, as the water that feeds it is being permanently used for irrigation. Should this fact be demonstrated it might be possible for the engineers to secure a line requiring shorter trestles.

The section from Ogden to the shore requires ordinary valley grading, with a bridge over the Weber River. The trestle from the east shore to the Promontory across Bear River Bay does not present a formidable aspect, as the water for the most part is shallow and the bottom sandy.

At the Promontory heavy work will be encountered, the end of that point being of partly submerged rocks. The same formation is found at the north end of Gunnison Island and at Strong's Knob. The latter is sometimes an island, high water making Davis Strait between it and the mainland. Strong's Knob, however, is the only point on the west shore where such a cut-off could enter the lake. The west shore is a veritable rockbound coast, as the illustrations will show, and "a man unacquainted with the geography of the coun-

try," as John Sebastian used to say in his folders, would hardly believe that the engravings are true pictures of America's Dead Sea. Strange as it may seem, however, the narrow opening of the Great American Desert is at Strong's Knob. North are the Terrace Mountains and south are the Lakeside Mountains, barriers to the proposed railroad. The desert is in reality part of the bed of the former Lake Bonneville of the quaternary period, and this fact also greatly helped the engineers who, by utilizing the desert, secured an easy grade to Lucin, and with no heavy construction work in sight.

It can be seen at a glance that the grades on the cut-off will be very light from Strong's Knob to Lucin, a rise of less than 500 feet in 58 miles, and from the east shore to Ogden, a rise of about 100 feet in 17 miles with the level tangents on the lake.

Compared with the present line, the reductions in gradients will be most marked. Eastbound trains have to climb the Kelton Hill, Promontory Hill, and into Ogden. Westbound trains have to climb Promontory, Kelton and into Lucin. The eastbound ascent of Promontory is 40 miles, and the westbound ascent is 28 miles. Helpers are constantly in service, and the expense on this one hill is very great.

A maximum grade of less than 1 per cent can be secured on the cut-off, which, with the 39 miles saved in distance and the elimination of curvature, will give a result which would at once become apparent in the operating department.

The work of driving the piles and constructing the trestles in the lake will be an expensive undertaking, but that it can be accomplished there is no doubt.

Aside from the great saving to the operating department resulting from the construction of the cut-off, the Southern Pacific's passenger department would be able to advertise one of the most unique and interesting features of Western railroad scenery.

GOOD ROADS TRAIN, ILLINOIS CENTRAL RAILROAD.

For several weeks past the daily papers have reported the plans which have been under way for the equipment of a train of the Illinois Central Railroad with machinery for constructing sample stretches of public highway at points between New Orleans and Chicago. In two or three instances brief mention of these plans has been published as news items in the columns of The Railway and Engineering Review. These plans have now matured and the train, equipped in the manner previously reported by us, has been sent to New Orleans, arriving there on April 22. As this is an enterprise in which railway companies are more or less directly interested, and, in fact, one in which the railway company named is actively participating, some account of the details of the affair is appropriate and timely.

To begin with, there are, generally speaking, three parties behind the movement. The Illinois Central Railroad has donated the train and the transportation of the equipment and party, furnishing sleeping apartments and commissary facilities for eighteen people, besides the services of six laborers, who are with the train. Another party consists of seven manufacturers of road-making machinery, who pay for the privilege of representation on the train and supply the men to operate their own machines, with which the practical demonstrations of road-making will be made. The other party is the National Good Roads Association, under Mr. W. H. Moore, president, who has charge of the expedition. This association is represented by eleven other men, including the secretary of the association, the private secretary of the president, the official photographer of the association and the engineer of the association, who will be the foreman

of all the work of road construction which will be undertaken. Accompanying the party of the National Good Roads Association are the Hon. Martin Dodge, director of the office of public road inquiries of the Agricultural Department, Washington, D. C., and Mr. Charles T. Harrison, road expert of this department. It should be understood, by the way, that the national government is co-operating with the National Good Roads Association in the movement. Four or five representatives of the large metropolitan dailies will be in continual attendance, and as guests of the Good Roads Association, Mr. A. W. Campbell, director of the road department of Ontario, Canada; and the Hon. Andrew Pattullo, Member of Parliament of the Canadian government, will be with the train.

Aside from the object lessons which will be afforded by the operations of road construction, the purpose of the movement, and really the main object, is to organize district road improvement associations at the points where the train will stop, and State associations at the State capitals, to carry the work forward from this initial movement. To this intent the train is accompanied by the road experts already named, and meetings will be held at which the problems of and the means for the improvement of the public highways will be publicly discussed. In fact, an ef-