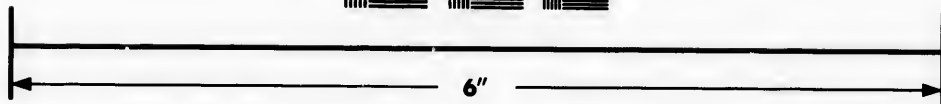
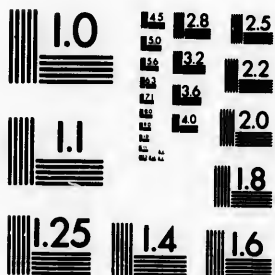


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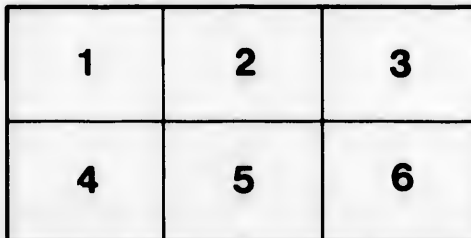
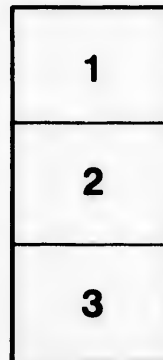
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TELEGRAPHIC COMMUNICATION  
BETWEEN  
EUROPE, AMERICA,  
CHINA, JAPAN, AND THE EAST INDIES,  
VIA SIBERIA.

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*(Extracted from the MORNING POST of October 3, 1861.)*

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The following highly interesting paper has been communicated to us for publication:—

The failures of the experiments in submarine telegraphic lines, and the consequent losses attendant on them, are of such a character that their causes deserve minute investigation. In addition to the incomplete examination of the depths and peculiarities of the seas and oceans, and the imperfect mechanical contrivances for that purpose, there are still far greater obstacles to be overcome to enable a complete examination to be made, and to establish telegraphic communication between the different parts of the globe, separated by vast oceans, impenetrable deserts, or barren wilds.

Such an enterprise as that of connecting the Old World with the New, and other parts of the globe, cannot be carried out without great loss of capital and other sacrifices; and even if successful for a time, through the application of some improved contrivance, it would always

be very expensive to maintain it in perfect order. The unsuccessful projects of the Atlantic and Red Sea cables, which have swallowed up nearly £2,000,000, and which enterprises are now considered by men capable of judging, to be dead failures, yet are not so impracticable as many would seem to believe, provided that a different and safer plan than that hitherto pursued be followed—viz., for the former, the adoption of the route through Russia, where, passing up through the Behring Straits (about 50 miles broad), the Aleutic Islands seem to form the piers of a bridge, shaped out as it were by nature to connect the Old with the New World.

That the eastern route, *viâ* Russia, has already proved of great importance to Europe, is evidenced by the sensation that was excited in 1858 and 1860, when the papers received the telegraphic news, *viâ* Siberia and Russia, of peace having been concluded with China, and yet telegraphy in this part of the world is only in its infancy.

It may also be added that the English and French Ambassadors in China are now using that line for their correspondence transmitting it from Pekin through Mongolia.

Another fact may be mentioned bearing on this point—viz., that a telegraph company in England has offered several commercial houses in London, to transmit their messages to and from the East Indies through Russia and China, *viâ* Pekin, which is considered a quicker route than the usual mode of communication, the East Indies being connected by steam navigation with the Chinese ports, which will now be extended from Shanghai to Tien-tsin, on the river Hai-he (Pei-ho).

East Indian messages sent by this route are forwarded to Pekin; those from the latter place are handed over to

the Russian Post-office, and transmitted to Kiachta, taking from 11 to 14 days; thence by courier to Kasan, and sent by telegraph thence to London; but as soon as the telegraph line, which this year will be completed to Omsk, shall reach Irkutsk (some time in 1862), European telegrams to or from Pekin will be transmitted in 14 days.

Thus the universally important Siberian line will be a *fait accompli*, more particularly if it is carried through America.

The Russo-American telegraph line will be constructed as follows :—

A line as far as Omsk, *viâ* the Ural Mountains, will unite Europe with Asia this year, and the following year it will be extended to Irkutsk, so that in 1863 all the Russian ports will be connected through the sea of Japan, Nikolaevske, and the Amoor; and telegraphic communication from the Baltic to the Pacific will be finished in the year 1864.

At the same time, *i. e.*, during the year 1862, the North Americans will construct a line as far as San Francisco, through the scarcely penetrable deserts, wilds and mountainous districts inhabited by the Red Indians.

Thus, in the year 1862-1863, there will be two well-constructed telegraph lines, with two conducting wires on the two opposite shores of the Pacific; the one leading to the shores of the Baltic will bring the telegraphic news from New York, Boston, Canada, Philadelphia, New Orleans, and from all the Northern States of the New World; and the other from Castries and Wladivostok to Europe will be connected with London, Paris, Lisbon, Rome, Algiers, Naples, Constantinople, and all the principal cities of the Old World.

Between these two telegraphic stations there is that large ocean, the Pacific (several thousand miles broad), which, towards the north, becomes narrowed to about 50 miles, and forms the Behring Straits. To this, the sole point of connexion of the Old with the new World, the attention of several scientific gentlemen has been drawn, who considered it practicable to construct a telegraph between the two shores, and many, amongst whom were Colonel Shaffner (in the year 1854), Liger di Libessard (in 1857), Slegb (in 1859), and the American Collins (in 1861), offered their services to the Russian Government.

But the impracticability of carrying out such a project arises from a fact with which these gentlemen were not acquainted—viz., the nature of the countries around Behring Straits and the Behring Sea, such as Tschukischy and the North-western parts of America, through which aerial lines would have to be constructed. They are so wild, and covered with perpetual ice, that even the maintenance as well as the construction would be impossible, as no human being could exist there for any long period of time, and the length of the requisite line would of necessity require some intermediate stations.

No notice need therefore be taken of a project to lay a line in this direction.

But there is another direction—viz., in the southern part of the Behring Straits, which almost seems to be pointed out by nature as the only link by which the Old could be connected with the New World. This connecting link appears in the shape of small adjacent islands, called the Aleutic Islands; and the line from Kamtschatka to America, across these islands, would be about 1,600 miles long. The sea in this region is as broad as the Atlantic between Valentia (Ireland) and Trinity Bay (Newfoundland), but



with this difference, that instead of the great and constant breadth of the Atlantic, it is studded with large and small islands, separated by small bays, the largest of which (that of Copper Island) is about 200 miles (350 wersts) broad, the breadth of the others being as follows :—

1 .....	100 miles (175 wersts).
1 .....	70 miles (122½ wersts).
3 .....	50 miles (27½ wersts).
1 .....	30 miles (52½ wersts).
8 .....	20 miles (25 wersts).
4 ..	5 to 10 miles (8¾ to 17¼ wersts).
32 ..	5 miles (8¾ wersts).
30 .....	1 mile (1¾ wersts).

—  
Total 80 islands.

These islands are mostly extinguished volcanoes, mountainous, rocky, and woodless. Some of them are inhabited by Aleutes, and some are Russian and American depots. The sea in this part, with the exception of some of the bays, is never frozen over, but sometimes small pieces of thin ice, driven in from rivers, float there, and also sometimes real polar ice.

Without entering into a topographical description of the climate, &c., there, this route may, under all circumstances, be considered as the best and safest for laying down submarine cables.

Such a line can be constructed either by connecting these islands by short submarine cables and aerial lines on the land, or without the latter, by selecting some suitable points (such as ports and inhabited places) through which a long submarine cable could be conducted.

In the first place, such a line would consist of 770 miles of submarine cable, and 233 miles of aerial lines. Such a line would at first sight appear preferable, as the aerial lines interconnecting it, would make it so much cheaper than if the whole length were cable, but there would result the following great inconveniences:—

I. Owing to the Aleutic Islands being destitute of wood, the erection of telegraph poles in the stony ground, and the replacing them in case they became rotten, would offer great difficulties in the construction of aerial lines.

II. The many shore-end cables which would be required, mostly exposed to deterioration, especially on the rocky shores there, and generally more expensive than the other parts of the cable, on account of the rocky beds between these islands, would be in danger of soon becoming useless; and

III. These shore-end cables would each necessitate a man to guard it, and by placing two men on each island at least 100 men would be required; whilst at some places water (much less food) can scarcely be found.

From the above causes we may safely conclude that a submarine cable all the way from Kamtschatka to America, though in the first instance more expensive, would be more durable, and would bring the different cables to such shores, where there is a safe port and anchoring place.

The following points could be selected in the Aleutic Islands for such a submarine line:—

From Petropavlovsk in Kamtschatka to—

1. A village in Behring Island .....	580 wersts.
2. Port in the Copper Island .....	150 „
3. Port Tschaleskoi, at Attou Island.....	445 „
4. Port at Kiska Island.....	300 „

5. Port Constantine, at the Amschitka Island.....	155 wersts.
6. Bay Slava Rosii, on the Tanaga Island	238 „
7. Bay Nassau, do.	149 „
8. Village Nicolskoe, on Atka Island ...	192 „
9. Bay and Village, Umnak Island .....	470 „
10 Village Illüluk, Captain's Bay, Una- laschka Island .....	186 „
11. Village Schischaldinskoe, Unimak Island .....	293 „
12. Village Morsehevskoe, Aliaska Island	124 „
	<hr/>
Total.....	3,282 „
	or 1,875 geographical miles.

The submarine line would therefore connect Kamtschatka with America, *i. e.*, the Old with the New World; but in order to completely encircle the world, it would have to be extended on one side as far as California, and on the other to the Amoor, where all the Russo-American lines meet.

From the Island Aliaska an aerial line could be erected as far as the Russo-American colonies; but in the other less populated countries, inhabited by wild and warlike tribes, the construction of such lines would be scarcely practicable, unless they could be properly protected.

The same objection applies to the English colonies of the Hudson's Bay Company, and further, also, to Oregon and California, and for the same reason it was found necessary by the Anglo-American Company to construct a submarine in preference to an aerial line between San Francisco and Vancouver's Island.

Submarine cables can, in the same manner, be laid

between Kamtschatka and Aliaska, connecting the islands of Schumagine, Kardiak, and other small ones as far as the port of New Archangelsea, on Sitka, and down to the Island of Reine Charlotte.

The length of this line would be 1,315 miles (2,300 wersts), and it would be connected with the cable which is already laid between Vancouver and San Francisco, ? thus establishing a communication with all the telegraph lines of America.

A submarine line between Kamtschatka and the Amoor would therefore be also preferable to aerial lines, having the latter only when urgent necessity requires.

There are four routes for such a line, viz. :—1. Ochotsk ; 2. Bolcherezk ; 3. Sachaline ; 4. Japan.

I. With reference to the first route, it would be likewise necessary to connect this line by small sectional cables, as an aerial line along the shores of the Sea of Ochotsk, as proposed by some engineers, would be impracticable, the country round the Sea of Ochotsk being wild and uninhabitable.

Starting from Nicolaevske on the Amoor, this line to Kamtschatka would have to touch at the following points:—

	Wersts.
1. The Bay of St. Nicolai, in Ulbon (aerial line)	200
2. The Chantar Islands (submarine cable) .....	200
3. Port Ajan (do.) .....	275
4. Ochotsk (do.) .....	500
5. Port Tauisk (do.) .....	425
6. Cape Piaguine and Iamsk (do.) .....	500
7. Tigel, in Kamtschatka (do.) .....	175
8. Nischne Kamtschatka (aerial line) .....	425

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Total 2,700

There would then only remain to be constructed a length of 275 wersts, including 105 of aerial line, from the southern part of Kamtschatka to Behring Island. The submarine line from Kamtschatka to America would therefore have to start from Cape Kamtschatka and Nischne Kamtschatka, and not from Petropavlosk, but be connected with the latter by an aerial line of about 725 wersts from Nischne Kamtschatka.

The line *viâ* Ochotsk would therefore be of the following length:—

Submarine cable .. .. .	2,075 wersts, or 1,187 miles.
Aerial line .....	1,350 „ 771 „

Total 3,425 wersts, or 1,958 miles

II. Route *viâ* Bolcherezk :— Wersts.

1. From Port De Castries to Cape Lasareff  
(aerial line) 110
2. Straits of Sachaline..... (submarine cable) 10
3. Bay Nü, on the east shore of the Island  
Sachaline..... (aerial line) 130
4. Bolcherezk, in Kamtschatka (submarine cable) 950
5. Port Petropavlovsk..... (aerial line) 200

Total ..... 1,400  
or 800 miles.

III. Route *viâ* Sachaline :—

In connection with an aerial line as far as Cape Terpenia, a submarine cable of 550 wersts (315 miles) would be laid to the Russian island Urup (Curilian Islands), and meet the line leading to Petropavlovsk.

The length of this line would be 2,800 wersts (1,600 miles), including an aerial line of 914 wersts, or 1,200 miles.

IV. The route *viâ* Japan :—

From the Bay St. Olga to Port of Hakodate, on the Japanese island Matsmai.

A submarine cable, of 600 wersts, or 350 miles, which, following up the line in the direction of the Curilian Islands as far as Port Petropavlovsk, in Kamtschatka, would form a length of 2,500 wersts, or 1,422 miles.

The different lengths of the line by these four routes, taking Habarovska on the Amoor as a central point, would be as follows :—

	Aerial line.	Cable line.	Total miles.
1. <i>Viâ</i> Ochotsk,	1,272	1,186	2,458
2. <i>Viâ</i> Bolcherezk,	622½	542½	1,171
3. <i>Viâ</i> Sachaline,	914	1,057	1,971
4. <i>Viâ</i> Japan,	402	1,428	1,830

It will be observed that the first three routes pass through Russian territory ; the last route from Hakodate, along the Curilian Islands, Matsmai, Kunaschir, and Urup, which being Japanese possessions, it would, in a political point of view, appear inconvenient, but, as regards commercial interests, it would prove advantageous, Hakodate being a port used by the whole European commerce.

The route *viâ* Bolcherezk being the shortest and most convenient, and the depth and peculiarity of the Sea of Ochotsk presenting no obstacle to laying a submarine cable, and passing through more inhabited countries, preference ought to be given to this route over the others, provided that no unforeseen impediment should present itself.

The route *viâ* Ochotsk being much longer, and therefore more expensive, besides leading towards the north, where an aerial line of 200 miles would have to be constructed

through a wild and uninhabited country, the erection of such a line would be impracticable.

Although the route *viâ* Sachaline is more southerly, yet it is too long, more expensive than that *viâ* Bolcherezk, and likewise more inconvenient, as it leads through the wild steppes of the Curilian Islands, which are still uninhabited.

However, this line appears to offer some advantages, as it could be connected with all the Russian frontier points in the Pacific, yet it would by no means supersede that *viâ* Bolcherezk, which would require the following lengths of cable :—

	Wersts.	Miles.
From the Amoor to Kamtschatka.....	1,400	800
From Kamtschatka to Aliaska in America	3,282	1,875
From Aliaska to Reine Charlotte Island...	2,300	1,315
	—	—
Total.....	6,982	3,990

Or about 7,000 wersts, or 4,670 English miles, or 1,000 German miles, or 4,000 nautical miles.

Instead of the aerial lines through Sachaline and Kamtschatka, underground lines would perhaps have to be substituted, owing to the wildness of that part of the country. These underground lines would therefore have to be considered as cable lines.

#### TELEGRAPH TO CHINA AND JAPAN.

The aerial line through Siberia, which the Russian Government is at present constructing, leads to Japan and China, and offers the quickest communication with Europe. Messages from Japan can be sent to the Russian ports of Wladivostok and St. Olga, which are situated in

the Sea of Japan, and thence telegraphed *viâ* Siberia to London and Paris and the whole of Europe. Messages from China, sent through the Russian Post-office from Peking to Kiachta, can be telegraphed from the latter place to all parts of Europe.

If the commercial interests of Europe should require it, a direct telegraph, either submarine or aerial, could be constructed to Japan and China, in connection with the Siberian line. A land line would have to be erected in the direction of Kiachta.

There are several routes from Kiachta to China through the desert of Gobi, but the one which is at present used by the Russian post traffic would have to be chosen for the construction of a land line, forming a length of 1,775 wersts (1,015 miles), though one-half of this—viz., from Urga to Kalgan, a distance of about 1,285 wersts (735 miles)—is a woodless, stony and sandy tract of land, and only inhabited by nomadic Mongols, who relieve each other at the post stations; yet there would be no difficulty in constructing a telegraph line, as at certain places where there are pasture grounds and water in abundance stations could be erected for the men guarding the line. It would also be advisable to substitute iron for wooden poles in case one or more of the poles should in time become useless, as wood in this part of the country is very difficult to procure.

However expensive such a land line would be, it deserves mature consideration whether the vastness of the commercial interests of Europe would not warrant such an outlay, as the want of wood for building purposes, the expense of supplying it, the erection of stations in the desert, and the supply of other necessaries, would increase the expense by 500 rubles (about £80) per werst, which



would amount for the whole length of the 1,775 wersts of land line to 900,000 rubles (3,250,000fr. or £130,000).

But as regards a submarine telegraph to China, the first connecting point with the Siberian line would have to be at Shanghae, the port most frequented by China-European commerce, from which place alone, the messages transmitted to Europe would be so numerous that the expense of such a cable would in a short time be covered by the traffic.

From Shanghae a branch aerial line to Peking could be constructed, but the erection of such a line in the present disturbed political state of China would scarcely be practicable; and as regards the length of a submarine line thence to the shores of the Bay of Petshelig, it would, according to the indication of the map (to which we can only refer), be about 1,100 wersts (630 miles), the expense of which would be about 1,375,000rs.

If, on investigation, it should be found that a submarine line in this direction offers no difficulty, the expense of the whole telegraph line from Kiachta, in Siberia, to Shanghae, and thence to Peking, would amount to 2,300,000rs. (8,300,000fr., or £330,000).

If on the other hand any political obstacle should prevent the carrying out of this line, it could be connected with the Russian ports at Shanghae.

From the future telegraph termini of the Siberian line at the ports of St. Olga or Novgorodsky, towards Shanghae there are several small islands which could be used as resting-points for the cable, and as stations; they lie, besides, near Japan, so that a branch telegraph line would connect Japan with the main one. The length of this cable line between the Russian shores and the Sea of Japan would be as follows:—

From the Port of Novgorodsky, Gulf d'Anville, to—	
The Island of Dagelet.....	300 miles.
„ Tsussima .....	180 „
„ Quelpart .....	180 „
„ Shanghae .....	300 „
From the Island of Tsussima to Nagasaki, in	
Japan .....	120 „
—————	
Total.....	1,080

1,200 nautical miles; 2,100 wersts, which would cost about 2,500,000 roubles (9,000,000fr., £360,000).

The length of the whole line between Shanghae and London would therefore be:—

The length *viâ* Kiachta, in Siberia, to Peking, 12,000 wersts, or 6,860 miles.

The length *viâ* the Sea of Japan and the Islands of Tsussima or Quelpart, about 14,650 wersts, or 8,370 miles.

But as the telegraph line to the East Indies through the Mediterranean and the Red Sea, as projected by the English, forms a length of about 19,000 wersts, or 10,860 sea miles—viz., 4,000 miles more than that *viâ* Kiachta, the latter being the same length as the line between the Amoor and the Island Reine Charlotte, the same amount of capital as that expended on the East Indian line would suffice for the universal telegraph connecting the East Indies with Shanghae, and thus establishing a telegraphic communication between Europe, America, China, and Japan.

From the above we may conclude what material advantages would accrue from communication with the East *viâ* Russia.

### THE EAST INDIAN TELEGRAPH.

As the English can make no use of the Red Sea cable, they propose now to construct aerial lines through the wild and barbarous countries of Asia Minor and Persia, and thence to Beloochistan and Affghanistan. Although the carrying out of such a project may be successful, yet the maintaining of such a line in a state of repair would be equally expensive as difficult.

But if a general telegraphic communication with the East Indies should crown such an undertaking with success, a glance at the map of Russia would convince one that the Russian telegraph line along the Caspian Sea, Orenburg and Ormsk, can very easily be extended to Teheran, the shores of Syr-Darja, and the Sea of Issik-Kul, and that, in case of any political misunderstanding, the short line between the Russian and Indian frontier stations could easily be destroyed.

Russia having no commercial relations with the East Indies would gain no other advantage but the transit of messages from such a telegraphic communication.

This route to the East Indies, which in every respect is a safer and better one than that through the wild steppes of Asia Minor and Persia, cannot be too strongly recommended.

I shall on some future occasion point out more minutely the telegraphic route between Russia and the East Indies.

(Signed) D. ROMANOFF,  
Lieutenant-Colonel, Chef des Telegraphes,  
Siberie Orientale.

