# SCIENCE.—SUPPLEMENT.

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## *COLONIZATION IN ALGERIA.*[1]

THE problem of colonization in Algeria is by no means the same as in America or Australia. In the latter countries, the native population is sparse, has no conception of the use of land for agriculture to any extent, and yields with little resistance before the advance of civilization. In Algeria, on the contrary, the natives are relatively numerous, have maintained themselves in possession of the land for centuries, often by force of arms, and, however imperfect the use they make of it, resist any encroachments upon their rights with some intelligence and a great deal of vigor.

The French government had originally no intention of colonizing Algeria, but took possession of the city of Algiers as a purely military measure. But various classes of settlers, who were entitled to French protection, continually arrived and occupied the vicinity of the city; to protect them against the marauding Arab tribes, the French generals found themselves compelled, often against their own will, to advance their lines farther and farther; and at last the government concluded definitely to hold the whole country and colonize it.

The history of the attempts at colonization since the first, in 1840, presents almost an unbroken succession of failures. Every governor-general had a theory of his own, and his first step was usually to make a clean sweep of all the arrangements of his predecessor. Marshal Valée, in imitation of the Roman military colonies, attempted to use discharged soldiers as colonists. He overlooked the fact that the ancient military colonies only flourished where the veterans succeeded in completely subjugating the former inhabitants and forcing them to work the land. The result showed how gross was his mistake in supposing that the absinthe-soaked old troopers would develop into good farmers; the 300 whom he established in 1840 at Kolea, left to a man the next year.

The next governor, Marshal Bugeand, also tried the military plan; but instead of discharged veterans, he settled soldiers who had still two years to serve, and were for that period subject to martial law. Moreover, since bachelors are not the most successful colonists, they received a three months furlough to go home and provide themselves with better-halves. The result was what might have been expected. The military colonists, hemmed in by their code of petty regulations, and prevented from anything like independent action, felt much less at ease in their settlements than in the old barrack life; and at the expiration of their time of service returned, almost without exception, to 'La Belle France.'

Besides these military attempts, some civilian settlements were founded, which promised better results. The same method had been adopted which is followed at present, and which, under the conditions which exist in Algeria, seems to be about the only one possible. The government provides a place for a village of 50 to 100 houses; it gives for each house a certain acreage of land, puts up the public buildings, provides for the water-supply and connects the village by a paved street with the main road; after this is completed, the land is parcelled out to the individual colonists, who must agree to build a stone house of certain dimensions, fence and break up the land, and set out a certain number of fruit trees. The title of possession is only provisory, and can be withdrawn if the conditions are not fulfilled; not until after a certain number of years is the title unconditional, and not until then can the land be sold.

Much has been said against this plan; but it is difficult to see how any other could be employed. It is impossible for individual enterprise to secure land for a settlement; the property-rights among the natives are in too involved a condition. Four kinds of landed property are recognized: 1st, the *Azel*, or domain-lands—property of the government, or more exactly, of the officials; 2d, the *Habbus*—property of the mosques, schools, hospitals, etc.; 3d, the *Arkh*—property of private individuals; 4th, the *Melkh*—property of families or tribes in common. The first division comprises some of the best land in the country, and there was at one time a chance to get at it for colonization; but it has now fallen into the hands of speculators, and only the forests are left for *bona fide* colonists. The *Habbus* is, of course, unavailable for colonization. The *Arkh* belongs originally to the Kabyles and Moors; the former are very reluctant to sell to foreigners, and in most places have a law which gives the next neighbor the first privilege of purchase; while such of the Moorish lands, as were saleable, have already passed into the hands of native Jews. The *Melkh* belongs to the various Arab tribes, and usually comes into

[1] From an article by Dr. W. Kobelt in *Das Ausland*

the hands of the French government by confiscation, which the tribe suffers as the penalty of a revolt. This is practically the only land available for colonization, and it is easy enough to see that, in the presence of the revengeful Arabs, the colonies must be strong enough from the outset to protect themselves. This plan has always been expensive for the government, but a considerable number of colonies had, in some degree, succeeded during the first eight years.

In 1848, an attempt was made to settle at once some 13,500 of the unemployed workmen of Paris in Algeria. Each family received a house with a certain amount of land, stock, tools and seeds, and rations for two years. But the material was the worst possible for an agricultural colony; the workmen lived in idleness, consumed their rations, and as soon as these ceased, went back to Paris, as soon as possible. An almost identical plan was tried in 1871, with 10,000 of the discontented Alsatians, and the result was the same; in 1875 every village stood empty. From 1848 to 1871 all sorts of experiments were tried, the details of which would be tedious; the result of all was nearly or quite failure.

In 1873 a private society, the *Association protective des Alsaciens-Lorrains*, succeeded in founding three villages, which are now in a very flourishing condition. The government undertook, as usual, the works of common utility; members of the society went to Algeria and chose the sites for the villages. They required from each colonist a considerable deposit toward the general expenses of the society, and thus secured a much more thrifty class of emigrants than had figured in any former undertaking.

Besides the Alsatians, and some other Germans, a large number of Spaniards and Italians have settled in Algeria. With the increasing exportation of halfagrass from the province of Oran, there is a great demand for laborers; Kabyles enough cannot be obtained, the Arabs will do no regular work, and the French and Germans cannot endure the climate. And so natives of the south of Spain, who are accustomed to a similar climate at home, were imported. And they came to stay. They are a hard-working, sober, thrifty class of people, and after a little they usually accumulate enough to buy out some shiftless French colonist. In this way Oran and some other provinces have become almost entirely Spanish. These southern Spaniards are historically much more nearly related to the Kabyles than to the French; they do not readily assimilate with the latter; they live by themselves, and are looked on by the French with jealousy, and not without reason; for if Spain should ever get possession of Morocco, the Spanish population of Oran would probably lead to unpleasant political complications.

The French also look with a jealous eye upon the Italians, who are mostly in the eastern coast-district, where they at first came on account of the fisheries. They are not so numerous as the Spaniards; in 1881 they numbered 31,000 against 112,000 Spaniards, but many of them become naturalized and are then reckoned as French.

As to the French themselves, many of them have been successful colonists, both individually and in societies; but there is a continual drawback upon their success in the shape of the worthless character of many of the emigrants. There seems to be a general mistrust of foreigners among all the French in Algeria, from the Governor-general down to the poorest emigrant; and in the distribution of the colonial privileges, they proceed on the principle that the worst kind of a Frenchman is to be preferred to the best man of any other nation. The result is that not only all the public offices—and in the usual French fashion, their name is legion—are occupied by Frenchmen, but the best lands are often assigned to people who have no intention of thoroughly working them; they fulfil the letter of the conditions with as little labor as possible, let the land on shares to a native who works it in his own primitive way, and as soon as they have acquired a clear title, sell the land immediately, and go and repeat the experiment in another place. As in our own western states, an unscrupulous 'colonist' can often 'pre-ëmpt' in several places at the same time. Of course the officials are aware of this state of things, but in the lack of good French colonists they have felt themselves often compelled to wink at it, even if it should happen to go against their easy French consciences. But they are only putting off the question; at the sale of the above-mentioned land, it goes, sometimes directly, sometimes after some handling by speculators, to men who intend to make good use of it, whatever their nationality; and these are quite likely to be either other Europeans or Kabyles. The latter are not to be confounded with the Arabs, who are born nomads and yield before civilization; they are accustomed to town life, take kindly to improvements, send their children to school with great eagerness, work hard and save their earnings. The great objection to them on the part of the French is that they have a too well-defined sense of their own personal and political rights, look upon the French as usurpers, and will have nothing to do with them unless it is absolutely necessary. They are constantly learning better to know their own strength, and may, not far in the future, give the French a serious problem to handle.

Since 1881 a new aspect of affairs has appeared through the wine industry. The culture of the vine, after some partial failures on account of lack of experience with the different climatic and other conditions, is now an undoubted success; and it comes just at a time when the vine-growers in the south of France are beginning to despair of conquering the insect pests which are destroying their vines. Accordingly, large numbers of them have emigrated, and their capital and good-will have given a large impetus to the French colonization of Algeria. It is also found that the olive flourishes exceedingly well, and the prospect for the financial success of the colony is at last brighter. The government has spent, from first to last, an enormous sum of money upon Algeria; the railways, roads and other conveniences for travelling are in better condition than in Italy; and with the present good outlook in wine, oil and grain growing, it appears as if Algeria were to have an important future. Whether France will ever reap the result of her efforts there, or some other nation step in in her place, or even an independent state arise there, time alone will tell.

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## *RECENT GRAVITY DETERMINATIONS IN AND NEAR JAPAN.*

IN the year 1880 Professor Mendenhall, then professor of physics in the University of Tokio, made a determination of the force of gravity at that place, using a 'Borda's pendulum,' and comparing its measuring-rod with a meter, in the possession of the Japanese treasury department, which was a certified copy of the standard at the Conservatoire des arts et metiers. The determination was thus an absolute one, and, from the circumstances under which it was made, it would seem probable that the resulting value of $g$, 9.7984m, must be very near the truth. This is very slightly in excess of the values given by the formulæ generally accepted as best representing $g$ for any latitude, as deduced from a large number of determinations on different parts of the globe.

Since 1880 several of Professor Mendenhall's pupils, in the department of physics (notably Mr. Tanakadate, now assistant to the professor of physics), have made determinations of $g$ at four places in and near Japan, swinging two or three 'invariable' pendulums, in each case first at Tokio, then at the station in question, and again at Tokio, and they furnish very accurate relative values of the force of gravity at all these places. The results have been published in a series of three appendices to No. 5 of the *Memoirs of the science department of Tokio daigaku*, which contained Professor Mendenhall's work.

The most recent one is of unusual interest, for in it is the result of a determination of $g$ at the Bonin islands, which lie out in the Pacific five or six hundred miles south-east of the coast of Japan, and which have for a half-century been of note among geodęsists, as the place where the force of gravity is most in excess of the normal value of any thus far observed.

In the years 1826–9 Captain Leutke, in command of a Russian expedition, visited these islands and determined the value of $g$ to be about 0.0025m larger than the normal value, which will be, perhaps, better appreciated by saying that it indicated that a seconds-pendulum would vibrate there about 11 sec. per day faster than at the same latitude in most parts of the earth. This value has always been considered as abnormal, and generally left out in any discussion of the figure of the earth from gravity determinations. The interest attaching to the last determination by Mr. Tanakadate lies in the fact that, if Professor Mendenhall's value of $g$ for Tokio is nearly correct, then at present it is even more in excess at the Bonin islands than deduced by Captain Leutke; the last result giving about 0.0034m over the normal value of $g$, or a gain 15 sec. per day in a seconds-pendulum.

The whole result of the measurements on this part of the globe, thus far published, is best shown in the following table, which shows the date, place, latitude, observers, and the correction which the observations give to the value of $g$, as deduced from the mean of Everett's, Listing's and Herschel's formulæ which are closely accordant. In the final column is the corresponding gain in seconds per day, of a pendulum, which, with the normal value of $g$ given by the formulæ, would vibrate 86,400 times per day at each place.

| Date. | Place. | Latitude. | Observers. | Excess of gravity. | |
|---|---|---|---|---|---|
| | | ° ′ | | m. | sec. |
| 1826–9 | Ogasawarajima, Bonin Islands. | +27 4 | Leutke | +0.0025 | +10.9 |
| 1880 | Tokio, Nippon. | +35 41 | Mendenhall | +0.0003 | + 1.3 |
| 1881 | Sapporo, Yesso. | +43 4 | Tanakadate, Fujisawa and Tanaka | +0.0007 | + 3.1 |
| 1882 | Kagoshima, Kiu-shiu. | +31 25 | Tanakadate, Sakai and Yamaguchi | +0.0007 | + 3.1 |
| 1882 | Naha, Liu-kiu Islands. | +26 12 | Tanakadate, Sakai and Yamaguchi | +0.0010 | + 4.4 |
| 1884 | Ogasawarajima, Bonin Islands. | +27 4 | Tanakadate and Sawai | +0.0034 | +14.9 |

Mr. Edwin Smith, of the coast survey, and Professor H. S. Pritchett, of the Washington univer-