

Correspondence.

Vaccination and Science.

To the Editor of the Scientific American :

Your issue of November 15, 1879, lies before me, containing a strange article entitled "Anti-Vaccination Folly." I am somewhat amused to find how many concessions you make to those whom you charge with "folly." For instance, you say "the adverse statistics derived from European experience, or from American experience, previous to the adoption by our physicians of correct methods and uncontaminated virus, may be all strictly true, and doubtless are substantially true; yet our confidence in proper vaccination need not be shaken in the least."

Permit me to point out that those who have so much "experience," and so much "statistics" in their favor, cannot be, by any scientific rules, "fools." The scientific method proceeds by experience, and the collected results of experience (statistics). It appeals to facts, and to facts above suspicion—"true" facts. It deduces nothing from conjecture, where conjecture is not only out of place, but contradicted by facts. And yet you concede our European facts, permit us certain admissions from American facts, and then denounce us as having sent you a gentleman "with a craze," to "propagate our notions"—our "anti-vaccination nonsense"—in America.

Hard words are harmless, except as they lead to violent behavior. And your position as promoters of science may give to your hard words force which may spend itself in violent behavior toward worthy American citizens. It is, therefore, my duty and my pleasure to show that our cause is the cause of science and of freedom.

Now, to begin with, what is your charge against us? It is, that however true our arguments may be in England, or Europe even, they "can have no application here," *i. e.*, in America. And we are urged to "study the methods employed in this country, and try them at home."

Now, will it be believed that this is actually the whole case urged against us? Bovine virus, or not "over-humanized" virus, will stamp out—I understand you to say has stamped out—smallpox in New York. Therefore it will anywhere. But I have made myself as familiar as Dr. Martin's very courteous behavior toward me has enabled me to become, with your American system.

That system, let me tell your readers, is nothing new. It has been in operation in Europe from Dr. Jenner's day to this. And it has here yielded no such results as you describe it to have accomplished in America. Smallpox, let us all be cool-headed enough to remember, is an epidemic disorder. For long years it is absent, and then comes like a flood. It was declared in 1870 that the excellent vaccination in Ireland had banished the smallpox. In 1873 they knew at fearful cost the error of any such a calculation. I am not aware of any existing real positive evidence showing proof that bovine virus is better as a protection than "arm to arm." Dr. Warlomont has had great experience of the very same system as the one you advocate. He has a few days since appeared in London to give *éclat* to an endeavor to procure state patronage for "calf lymph." What does he say? Our system, he said, was "to be scrupulously observed. . . . This proposition is based upon a fact, without which it could not be maintained—the perfect identity between the lymph of the child and of the calf, so far as regards their active principle." He cites experiments made to prove this, and continues: "The identity is, therefore, perfect as to the nature of the active principle of the lymph, whether it is derived from the calf or the child."

"This identity is established, if possible, still more completely by my own personal experience."

"But it will be asked," he says, "if the two lymphs are of equal value, why call to the aid of humanized lymph, the supply of which never fails, the assistance of animal lymph? The answer is that this help is especially necessary to satisfy doubts, fears, imputations, and perhaps prejudices."

I hope these quotations make it clear that arm to arm lymph is equal in power and energy to calf, in the opinion and by the experiments of one of the most ardent defenders of bovine virus. Things which are equal cannot differ in quality.

But why, if it is so much more powerful, do the calf specialists, when pressed, deny its superior powers against smallpox? Why is there no array of European experience to prove its virtues, for it has been propagated here long, long years before it was thought of by Dr. Martin? The answer is that given by Dr. Warlomont: It is not used because it is more prophylactic, but to satisfy doubts, fears, and prejudices.

Now, may I assume my contention as to the absence of proof of the superior virtue of bovine virus proved? Evidence showing it does not exist, its own defenders abandon the contention when pressed.

But by the very crucial evidence to which you refer, we know scientifically the want of value in the arm-to-arm or "classic" method. Here is the last nine years of smallpox hospital experience I am able to get access to: Liverpool Hospital, 1875-6; Glasgow, 1870-2; Homerton, 1871-6; Metropolitan, 1870-1-2; Dublin, 1870-3, 1876 and '8; London 1876 to 1879 to Oct. 1—these yield 37,636 cases of smallpox. And the medical gentlemen attending these cases record no fewer than 28,468 of them as vaccinated. There is here an unparalleled failure, a signal disproof of Jenner's rite. Hold! you say, how many died?

Now the answer to that question set the *Lancet* thinking a very long time since; and I am not aware that up to this time it has thought out a satisfactory explanation. Our answer is that the number recovered out of every hundred of these hospital cases is roundly just what it was before Edward Jenner was born, namely, 82.

Jurin, 1723, gives nearly 83; Duvillard, 1700 to 1763, gave nearly 82; Rees, 1779, just 82.

And, further, the character of the disorder remains exactly the same that it was and has been so far back as exact accounts show it. The fatality now as ever is just as is the eruption. If that is extensive, then the deaths are numerous; if malignant, nearly all die; if the pustules are few and far between, the mortality is very slight indeed. This is the scientific classification of the disease. It is unaffected by vaccination, and applies to unvaccinated and to vaccinated alike. So it was before Jenner's day, so it is now.

But a disorder which treats its victims just as it treated them before the "annihilator" of it appeared, which follows the same erratic ways of appearing, which cannot be controlled in this epidemic tendency by its "annihilator," is, let us be plain and straightforward enough to confess, an untouched disorder. The so-called preventive is therefore a delusion. The money spent upon it is therefore wasted; liberty invaded and the person violated in its favor are therefore wantonly and unjustifiably treated to the national ill-being. Superstition usurps the place of reason, and violence the place of right.

It must follow from these considerations, which every fresh experience does but confirm, that the day will come when the men of science will denounce this rite. Then the gentlemen who, in the cause of science and humanity, visited you some time since to show the nature of this delusion, and endeavor to clear America from so great a stain upon free institutions, will receive his due. Galileo, condemned by the men of his time for having a craze; Bruno, burned by the great men of his day for being a pernicious fool—are the honored of Italy to-day. So will all those be who, against much prejudice and opposition, strive to lead the people to the light, supported by science, and encouraged by the fact that truth is on their side.

I am yours truly,

Darlington, Eng.

ALEX. WHEELER.

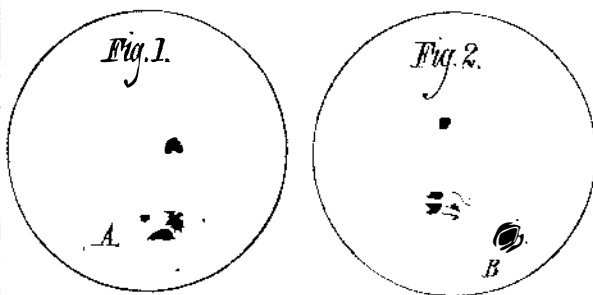
Solar Spots.

To the Editor of the Scientific American :

During the past few days excellent and interesting observations of sun spots have been made. This phenomenon of our central orb has been quite infrequent for two or three years, having been passing through the minimum stage of the spot periodicity. The cycle or period is about eleven years, and for the coming five or six years large numbers may confidently be expected, and of very extended dimensions.

On the morning of the 3d inst., two separate groups of spots were noticed, situated one above the other, and having made about one-third of their transit of the sun's disk, as represented in Fig. 1. All the figures are shown as seen in the telescope, or inverted.

The group marked A was a fine double one, preceded by an intensely black, small, round spot, as shown in the sketch



near A. On the morning of the 6th, this small round spot had disappeared, but others had developed upon the other side of the double one; and just fairly entered upon the eastern limb was a fine large spot (B, Fig. 2), which promised to develop into an interesting group. The appearance of the sun on this occasion is shown in Fig. 2.

On the morning of the 8th the sun's face presented the appearance shown in Fig. 3. The spot, B, confirmed the impression given on the 6th, and by its improved position, as well as some internal change, gave us the appearance here shown in Fig. 3. My attention was also attracted to some new very minute spots near the center of the sun, marked C, Fig. 3. This was the appearance on the morning of the 8th. In the afternoon of the same day, or only five hours later, these minute spots had changed into the appearance shown in Fig. 4, drawn to the same scale—a wonderful change having thus



taken place in these few hours. What an enormous energy is here manifested!

The group, B, continues to be one of the greatest interest. It is large, and broken up into a number of parts, surrounded with a delicate penumbra and

straggling lines. Fig. 5 shows a highly magnified view



of this group as seen this morning, February 9, 1880.

WILLIAM R. BROOKS.

Red House Observatory, Phelps, N. Y., Feb. 9, 1880.

Astronomical Notes.

OBSERVATORY OF VASSAR COLLEGE.

The computations in the following notes are by students of Vassar College. Although merely approximate, they will enable the observer to recognize the planets. M. M.

POSITIONS OF PLANETS FOR MARCH, 1880.

Mercury.

On March 1 Mercury rises at 7h. 10m. A.M., and sets at 6h. 56m. P.M. It may be found 2° east of Jupiter.

On March 31 Mercury rises at 5h. 25m. A.M., and sets at 5h. 29m. P.M.

Mercury is at its greatest elongation from the sun on March 10. It should be looked for after sunset, in the first half of the month, a few degrees north of the point of sunset. In the latter part of the month it sets too nearly with the sun to be seen.

Venus.

Venus is still seen in the morning, although nearer the sun and less brilliant.

On March 1 Venus rises at 5h. 9m. A.M., and sets at 2h. 50m. P.M.

On March 31 Venus rises at 4h. 52m. A.M., and sets at 3h. 59m. P.M.

Venus is near the waning moon in the morning on March 8.

Mars.

On March 1 Mars rises at 10h. 12m. A.M., and sets at 1h. 14m. of the next morning.

It can be seen north of Aldebaran on the 3d.

On March 31 Mars rises at 9h. 16m. A.M., and sets 33m. after midnight.

The "American Nautical Almanac" gives the time of an occultation of Mars by the moon, on March 17, as 6h. 22m. P.M., Washington time.

The moon will be at this time nearly at the first quarter, and Mars will be about an hour past the meridian, at a good altitude above the horizon.

The dark part of the moon passes first between us and the planet, and the planet disappears. Mars will be hidden for more than an hour, and will then reappear on the west of the moon; the strong red light of Mars and the pale yellow-white light of the moon will be shown in beautiful contrast. If the evening should be fine this will be very interesting, even as seen with the naked eye.

Jupiter.

On March 1 Jupiter rises at 7h. 8m. A.M., and sets at 6h. 39m. P.M. It may possibly be seen after sunset.

On March 31 Jupiter rises at 5h. 26m. A.M., before sunrise, and sets at 5h. 18m. P.M., before sunset. It may possibly be seen before sunrise.

Saturn.

On March 1 Saturn rises at 8h. 3m. A.M., and sets at 8h. 28m. P.M.

On March 31 Saturn rises at 6h. 14m. A.M., and sets at 6h. 49m. P.M.

In the early part of the month Saturn may be seen a little north of west when it sets; in the latter part of the month its diurnal path is nearly that of the sun, and it will not be seen.

Uranus.

Uranus is in good position for observers, almost at its best position, early in March, as it then comes to meridian a little before midnight, at an elevation of nearly 60° in his latitude.

On March 31 Uranus comes to meridian near 10 P.M.

On March 8 Uranus has the altitude of the star Rho Leonis; is east of it 2°, and moving toward the star.

Sun Spots.

The spots which were seen upon the sun in January returned in February, and were followed in their course from February 2 to February 6, photographs being carefully taken and drawings made. Up to February 6 three groups were seen, each of them including several spots.

After February 6 clouds interposed until February 8, when it was found that a fourth group had appeared upon the sun's disk; it had apparently formed among the others, but was not near enough to them to be a detachment from any one of them. Seen with a small telescope, some twenty individual spots could be counted in the four groups.

If these return again they should be seen late in February, and should by March 1 be easily found with a small glass; possibly with a smoked glass without magnifying power.

The Ali Baba Vase.

It is said that Miss M. Louise McLoughlin, of Cincinnati, to whom the ceramic art in America owes so much, has completed the largest vase ever moulded in this country. It is called the Ali Baba Vase, and stands 37 inches high, with a diameter of 17 inches. Before firing it measured 44 inches in height and 19 inches in diameter.