

that an experiment may have a so-called practical value and yet be worthless to the man of science. What is science but accumulated and co-ordinated facts? What fact is there which confirms, disproves, or illustrates any supposed law of Vegetable or animal growth, that is not valuable to the scientific man, and to the farmer as well? What agricultural experiment, worthy the name, but must perform this function? It is true, the farmer may be more interested in the results of the experiment, as in a comparative test of different varieties of wheat, while the scientist may be more desirous of ascertaining what constitutional peculiarity enables the one variety to surpass the other in yield; but in either case the fact that the one variety is the more productive is the stimulus of the investigation, and the methods of culture must be the same if trustworthy data are to be obtained for the use of either scientist or farmer. I do not forget that valuable facts have been learned from experiments which would be utterly impracticable in the field, and I would be the last to deny the usefulness of such work; but, until the applicability of these facts to the methods of the farmer has been demonstrated by field experiment, they are practically valueless. I do not deny that the study of isolated individuals, or of small groups of individuals, has a legitimate place in the work of the experiment-station; but, until the results of that study are shown to be applicable to the field or to the herd, they are worthless to the farmer, and equally worthless to the scientist. But this demonstration must be made by men trained to the scientific method.

C. E. THORNE.

Settlement of labor differences.

Last week's *Science* contains some views of Mr. N. M. Butler on the 'Settlement of labor differences,' which claim to be from the stand-point of 'science and philosophy,' which is explained to mean freedom from false notions and prejudices, and to be the observation of facts and relations as they are.

He says that 'we' are apt to look upon the present economic system as fixed and final. Who are 'we'? 'The fact as it is,' is that in America, England, France, Germany, etc., men by the thousands and hundreds of thousands most decidedly do not feel that way at all. Numerous American citizens known as Knights of labor have combined and organized for the express purpose of changing the present wage (i.e., private capital) system into an integral co-operative one; and, what is more, they work with earnestness, determination, and devotion to realize that end. Instead of "feeling an irresistible desire to look upon the (social evolution) process as completed, and the book of evolution as closed," they feel an irresistible conviction that society is entering on the threshold of a new form of economic organization. This belief is scientific; that is, it is based on experience carefully made and closely analyzed, as may be seen in the works of Karl Max, F. Engels, Henry George, and very clearly in that American writer George Gronlund's book, 'The co-operative commonwealth.'

Mr. Butler says something about "the ethical fact that there is a superiority of possessions." What can it mean?

Mr. Butler adds his voice to the chorus of 'arbitration' fetish-worshippers. Arbitration is to have 'magic' results. So it must, if it will harmonize the

interests that are diametrically opposed, as are those of capitalists and laborers in regard to sharing the product of labor.

But, say the 'arbitration' and 'harmony' preachers and Mr. Butler, the product is the combined result of the efforts of the capitalist and laborer. Sometimes the capitalist adds his efforts to the work of producing by direct labor, or indirectly by doing the requisite directing of the work, and sometimes he does not. When he does apply personal effort, he is entitled to reward; but that is a different thing from the profit on his capital which will go to him if he hires managers or agents, or is merely an investor or shareholder in a business he neither does nor can manage, nor in any way add 'effort' of his own to the work of production.

No, the capitalist need not work. He can (and many do) live in idleness, consuming enormously without producing at all, and, on an average, he never gives an equivalent of effort for what he gets: hence there is want of equity in the capitalistic system.

It is self-evident that no arbitration, but only a radical change of the system, can abolish this injustice; and this injustice is the cause of the 'labor differences.'

'Christian charity' will not suffice here; that is, the 'give all you have to the poor' doctrine will not do, but, rather, a modernized adaptation of the institutions of the primitive Christians, who had some primitive form of integral co-operation, for they held 'all things in common' (see the story of Ananias).

As to arbitration as a sort of palliative patchwork for making temporary compromises, perhaps it is good for that; but 'brute force,' in the form of police and militia, has to stand behind it to make capitalists keep their agreement, which they have broken in innumerable instances when it was in their interest and power.

Whether the change from the capitalistic to the co-operative mode of production will be by 'brute force' depends on the resistance the capitalists make to the course of evolution. History shows that privileged classes generally have appealed to brute force whenever their privileges were in danger.

The advice of science they do not heed. It is interest that guides them. Science, that is, our judgment of future facts by past ones, says the course of evolution of human society tends to abrogate all privileges and equalization of rights and duties. This is the democratic principle. When applied to social economy, it is termed 'socialism' or 'social democracy.' The capitalist cannot be a mere trustee without first ceasing to be a capitalist. This implies an entire change of the laws of property: hence the advice of science to labor is, Organize to make the requisite change of laws; that is, go into politics as a party to establish an economic republic, electing your directors of labors. That will settle all differences between capital and labor, because there will be no capitalist, and all will be laborers or starve.

CHAS. FIELD.

Eskimo building-snow.

In your issue of Jan. 15, 1886, you give an illustration of what purports to be 'hardened snow' impacted on a Mount Washington telegraph-pole by a strong gale. During the past winter I have