

## SCIENCE:

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DR. WILLIS G. TUCKER, analyst of drugs, has made his eighth annual report to the State Board of Health of New York. He has collected and analyzed 326 samples of drugs, and pharmaceutical chemicals and preparations. These include acetic acid, calomel, chloroform, ether, glycerine, iodoform, tincture of chloride of iron, lime-water, saffron (*Crocus*), santonine, and sulphur. Forty-three per cent were found of good quality; 13.5 of fair quality; and 24.2 of inferior quality; and 19.3 not as called for, that is to say, substituted articles, as, when saffron (*Crocus*) was asked for, common safflower was sold. Fifty-three samples of stronger ether were examined. Of these, 20 were of good quality, 5 fair, 26 inferior. One sample was spirit of nitrous ether, and another the so-called "concentrated nitrous ether." As Dr. Tucker says, such errors as these are the grossest of blunders, and the consequence of such ignorant or careless sales might be most serious to the purchaser. As stronger ether is used as an anæsthetic, it ought to be of good quality. If the samples examined by Dr. Tucker represent the true condition of affairs throughout the world, it is not surprising that evil results sometimes follow the use of ether as an anæsthetic, as his results show that more than 50 per cent of the ether he tested was of inferior quality. Dr. Tucker expresses the opinion that the work done during the past two years has had a decided effect in improving the quality of the drugs sold throughout the State.

## THE ADIRONDACK FORESTS.

As the majority of persons are interested in the preservation of our forests in the East, the arguments of *Garden and Forest*, in its issue of March 6, in favor of State control, will probably meet with some response. It is hardly likely that the direful picture which the writer of the article would bring before our mental vision will be realized; since the State of New York varies little in its commercial environment from New England, and in New England the tree-covered area has been on the increase for fifty years. So, while the constant change from freshet to drought may never be the fate of northern New York, yet the primeval forests may be gone as a pleasure-ground. The editor of *Garden and Forest* argues as follows:—

The complete destruction of the Adirondack forests is inevitable if existing conditions and methods of treatment are to continue. Unimportant improvements in the details of their management may be made from time to time; such improvements have been made within the last few years, and others are now proposed; but the processes of destruction are much more rapid and extensive than the effect of these comparatively insignificant means of amelioration, and there is at present no reason to expect that any effective provision will be made for the permanent protection of any part of this important region. Nothing can be done, indeed, without a thorough change in the system of control and administration of the forests on the State lands. The methods now pursued interpose no serious check to the influences which will extirpate the woods in a comparatively short time. If the devastation of the region, already far advanced, is completed, centuries of time will be required for any process of restoration.

The destruction of the North Woods will produce a change in the flow of the principal rivers of the State, and in the water-supply of the Erie Canal, which will cause widespread disaster to the interests of the people. There will be uncontrollable freshets at the times of heaviest rainfall, and when the snow melts in the spring; the channels of the rivers will be choked by *débris* brought down from the hills; and in summer, when a full volume of water is most needed, the flow will be insignificant. If this ruin is consummated, it will be a most serious blow to the prosperity of the State and of all classes of its people.

Not less important is the value of the region, in its relation to the health and life of the people of the country, as a place of resort for the inhabitants of the towns, and for all who need the restorative and vitalizing atmosphere and influences of a region of sylvan beauty and peace. As our population becomes more dense, the need and value of wild, rough tracts, incapable of cultivation, will be greatly increased. Beyond the arrangement required for the subsistence and comfort of the multitudes of visitors, no settlement or inhabitation should be permitted in any part of the wilderness. If the forests are destroyed, the entire charm and attractiveness of the region will be eliminated, and a scene of hideous desolation will be substituted which no one will ever wish to look upon.

The only plan by which such injury can be averted, and means provided for the permanent conservation of these invaluable forests, is the acquisition by the State of the entire Adirondack region. While portions of it remain in the hands of private owners, injuries to State lands adjacent to their holdings cannot be prevented. But it would be senseless and wicked to expend the money which would be required for this purpose while the present system of control continues. It has proved entirely inadequate for the protection of the forests on the lands which already belong to the State, and it would be the extreme of folly to acquire property at great cost when there is danger that it might soon be dissipated and destroyed.

Unless a system of permanent control, under competent direction, can be put in operation, the people of New York may as well relinquish all thought of saving the Adirondack forests, and all interest in the subject. There can be no adequate or successful administration of a great forest-preserve while its management is subject to the possibility of frequent change, because it is treated as a portion of the political patronage of the State government. Unless the care of the forests on the State lands can be placed in the hands of men of such known and obvious character and quali-

fication for this work as will inspire general confidence, no system of administration can be successful, and competent men will not accept a place of such responsibility and importance while their work is always liable to interruption by the agencies of partisan politics. The inadequacy and failure of the present system of control and administration are inherent in the system itself, and are inseparable from its relation to partisan change and caprice. The evil is not to be remedied by merely changing the persons who administer a system which is essentially vicious.

If the people of the State of New York have enough regard for their own interests to lead them to insist upon the adoption of a system embodying the essential features of competent direction and security from partisan interference, it will be safe and wise to acquire the whole Adirondack region by purchase. If they have not this perception of the importance of the object in view, and of the means which are necessary for its accomplishment, the forests will be left to their fate. The methods now employed are wholly useless and ineffective.

#### THE UTILITY OF AGRICULTURAL EXPERIMENT STATIONS.

THE Hon. W. W. Wright, in a recent address on the past and present work and future prospects of the Geneva station, New York, took occasion to uphold the usefulness of such stations. The establishment of an experiment station by the State near Geneva within the last seven years challenged a great deal of curiosity among farmers and others, and is of late creating more and more of interest. To most people it was entirely new, nothing of the kind being nearer than adjoining States; and it may be said to be a modern invention, but cannot be called a "Yankee contrivance," for England, France, Germany, and other European countries, led off in the creation of these establishments within the present century, and had expended many millions of dollars in their organization and maintenance before any of the American States had established one. New York was among the last to avail itself of these institutions, though its wealth, extent of territory, and diversified agricultural interests, would naturally have made it the first. In one sense, such a "station" is no "experiment." In its organization, management, and the results to be expected, we have only to look to other civilized countries, which have had an experience, in some cases, of nearly forty years. When the Legislature of New York passed the law for creating this station, the significant fact was before us that neither in this country, nor in any other, had these stations been established, except they had fully answered the expectations of their projectors, and had been cherished and sustained, because their benefits were so manifest that there was no hesitation about continuing appropriations for their maintenance. Agricultural colleges, and classes in universities in which scientific farming was taught, were established or endowed in New York, but they cannot be said to have been successful. The most extensive of them was totally abandoned after a few years; whereas no experiment station has ever been discontinued, or diminished in the scope of its work, or embarrassed in the want of funds, in this country or Europe. On the contrary, in foreign countries they have been multiplied to an enormous extent, and have steadily increased on this side, though not so rapidly. There must be some reason for the success of these stations, and the total or partial failure of the colleges. The truth is, they are both schools, in which there is little difference in the abilities and qualifications of the teachers, but there is a vast disparity in the number and character of the students. In colleges we teach a few hundred boys, only a small percentage of whom will become practical farmers; while the stations are endeavoring to teach the same science to a whole community of men of all ages and conditions, engaged in the business of agriculture, not alone through lectures in which the relations of science and practical farming are explained, but through the agricultural press, and pretty much all newspapers now published and circulated in this country, daily, weekly, and monthly; and these are supplemented by bulletins giving in detail appropriate facts and statistics of the greatest interest to those who desire to become better informed in a business which occupies their constant thoughts, and in most cases the labor of their hands.

Through these channels the stations reach the whole agricultural community. Nobody is too illiterate to participate in this knowledge, if he can read, or understand what others read to him. Nobody is too old to learn in this "school;" and he soon becomes almost unconsciously a teacher himself, for he imparts the knowledge he has thus acquired to others, in farmers' clubs and neighborhood gatherings, in the village tavern or post-office, at the country firesides, in the fields and on the highways, in an unpretentious but none the less effective and valuable way. He tests the theories of the professors, lecturers, and newspaper-writers by his invaluable practical knowledge and common sense, and often detects the errors into which theorists are always liable to fall, and thus renders valuable service to the true interests of agriculture. It may happen in this way that men who have never learned to read or write, but are capable of managing a farm well, may become valuable teachers in a limited sphere.

The first agricultural experiment station was established in Germany in 1851, and since that time the number of stations has steadily increased, until at present the number in the German Empire alone is given as 184. Careful statistics, including nearly every country of Europe, show that if New York should expend an equal amount, proportioned to the area of our territory, we should expend one million dollars annually. If, on the other hand, it were proportioned to our population, it would require an annual expenditure of three hundred thousand dollars before we should be on a level with the countries of Europe. The first station, as has been stated, was established in 1851 at Moeckern in Saxony; five years after, there were 6 stations in existence; five years later, 15; in 1866, 30; and in 1871, 56; since which time they have been even more rapidly increased.

Those who may perhaps regard the work done at Geneva as rather of scientific than practical value will be gratified to learn what work was entered upon and continued at this first station at Moeckern during the first six years of its existence. This is given in a summary recently prepared, comprised under twenty-six different heads. We select but a few of them: 1. Feeding-trials with sheep to ascertain the best maintenance rations; 2. Feeding-trials with cows, showing effect of colesed-cake on yield of milk; 3. Feeding-trials on fattening sheep; 4. Observations on the yield of manure of cows and sheep, and the changes it suffers by keeping; 5. Comparison of feeding-value of grass, hay, and aftermath; 6. Observations on milk-production in passing from winter to summer feeding; 7. Effect of lupines on milk-production; 8. Composition and value as food of various kinds of distillery and brewery waste; 9. Feeding-trials with cows, oxen, and calves, the proper proportion of nitrogenous and non-nitrogenous food-elements for the three classes of animals, etc.

#### THE ENCOURAGEMENT OF HIGHER EDUCATION.<sup>1</sup>

THE choice of the 22d of February for the founder's day of the Johns Hopkins University will always be recognized as singularly appropriate. Historic associations, at once local and national, determined the choice.

It is a fact not generally known that the Father of his Country, before he became President of the United States, was the president of a Virginia college. When Washington was chosen to the office of chancellor of William and Mary College, succeeding the Bishop of London in that educational honor, he assured the board of trustees of his firm confidence "in their strenuous efforts for placing the system of education on such a basis as will render it the most beneficial to the State and the republic of letters, as well as to the more extensive interests of humanity and religion." Washington was always the friend of William and Mary College, his *alma mater*. Without forgetting local institutions in Virginia, he advanced during his eight years' presidency of the United States to what may be called the national idea in university education. From that idea Baltimore to-day can derive encouragement and inspiration.

Washington's grand thought of a national university, based upon individual endowment, may be found in many of his writings, but

<sup>1</sup> Abstract of an address by Professor Herbert B. Adams, Johns Hopkins University, Feb. 22, 1889.