

Smut in Wheat.

At a recent meeting of the South Brandon Farmer's Institute an interesting paper was read by T. H. Hall on "Organization;" also one by Wm. Hull on "Smut," which brought out a very close and lengthy discussion on the paper and subject. Hull's paper was as follows:

Smut; what is it and is not, and how to prevent it: First, I notice smut is not grain of any kind. It will not produce its parent kind, or any other kind of grain. It has no reproductive life or power. It is the want of life that makes it smut.

Next.—It is not a fungus. A fungus on a plant is what we might call an alcor—a disorder on the plant. A fungus on a plant would be liable to spread or be of irregular shape and uncertain in its place of attack and also irregular in the time and extent of its growth. Rust might be properly called a fungus; seeming to come from outward injury caused by not remaining on the stalk during warm sunshine. But the healthy condition of the bran covering, and chaff surrounding the smut ball, shows that no injury has been received.

Next.—Nor do we think it true, as many writers assert, that it comes from within, that particles of smut, of a previous crop attach themselves to the seed, and are carried back through the pores of the plant and deposited in the new grain? Can such a fault be found in the laws of nature as that of a plant or tree, extracting from the earth that which poisons itself? Nature is well said to be "the perfection of God's handiwork." Examine minutely every plant, every herb or tree you may find, and you will find them true to the qualities they were designed to contain; they also contain these qualities pure on whatever soil they may grow. And any and of the thousands of varied plants or trees will continue to do so though placed on any of a thousand varieties of soil.

If imparities, or smut dust were carried in a plant, what would be the result where one grain or root often produces many stalks. The smut dust, and the nourishment to the plant together passing through the same centre, would produce all the grains of parity smut and partly grain instead of as we have it, some heads good grain and the smutty grains pure smut. The feeders of a plant are its most remote and fibrous roots. On all growing and vegetable life they are clear and transparent as crystal and seem to repel that which is not purified by earth. I am satisfied if these fibrous roots cannot extract pure water they will die or fail to extend themselves to where it is not pure, as oil stays from mingling with water.

Plant do not even derive their own nature from the soil. The are virtually like the Chinese lily, which you may plant in a glass bottle and only surround it with pure water and clean pebbles and it will thrive and continue to bloom in your house, even in winter. Other plants have not roots adapted to the same root bed or they would also thrive in it.

Each plant or tree is a small factory creating the qualities, reproducing the substances they are intended to have. The oak of three or four years old fails to produce acorns, not because there is not the material where it grows to produce them, but because it is not yet of the present age and size to produce them. On a stalk of crab tree you may graft a stalk of Northern Spy, and on that add a stalk of pear, and the produce of combined stalk will continue true to each variety. The pear could not have received its nature or blights from the earth, nor from the Northern Spy though joined to it.

What is it.—Smut seems clearly to be undeveloped grain, or the result of unblissomed grain. The time of blossoming is the only period in which the new grain can receive vegetable life, and reproductive power. This is clearly proven by it being the only time at which two varieties can be united or crossed so as to produce a new variety. If a head of wheat does not bloom it cannot become im-

pregnated with pollen from other grain, and if it is not, the bran covering that would have contained grain, fill with only the sap supplied from the stalk and not having received the life for a new grain is soured in the summer heat, as an egg not impregnated rots under the process of hatching. Ball smut is chiefly on the late and short stalks. If wheat is thinly sown on rough land there will be large spaces on which there are no plants. The surrounding plants will continue stooling out toward the open spaces, following a law of nature in growing toward light and air. When ripening time comes the early stalks from the same root begin to ripen and soon it is too dry for the late heads to receive moisture enough to develop them past the shooting stage. These will not bloom unless they have strength to go to another resting height from the shot blade.

If the early part of the summer is wet there will be a greater growth of late green stalks which if suddenly checked by a change to dry and very warm weather would mostly result in smut for the reason given.

Open smut in oats and barley seems to result from too rank a growth causing the thin bran covering of these grains to burst often before the heads were shot out. Sometimes the same occurs in wheat. Sometimes also pollen does not reach the first heads before their blossom dies, or winds may also if very strong in the morning, blow off or injure the blossom.

To prevent smut—prepare an even surface for the seed by harrowing well before sowing. Clean the seed well to leave an even sample of the best grains out of the crop from which the seed is taken. Soak in water that the grain may all take root as soon as sown, if the ground is a little dry. Sow with a press drill where the land will allow, and sow two bushels per acre or more. An even and full crop is in little danger of smut. I have no use for bluestone or lime as a preventative of smut, but lime or prairie dust may be put on the seed after soaking to prevent heating or sprouting before it is sown.

National Board of Trade Subjects.

The annual meeting of the National Board of Trade of the United States will be held at Washington on Tuesday, January 17, and following days.

Subjects submitted include a proposed amendment in the constitutions of the National Board, by which the number of vice-presidents shall be fourteen, who with the president, shall constitute an executive council, seven members being necessary as a quorum for transaction of business.

Uniformity of commercial law in the States and nation.

The protection of trade marks, of the owners thereof, and of the purchasing public, as proposed in Senate Bill No. 451, and House Bill No. 7216, before congress.

Favoring the enactment of a national bankruptcy law.

Opposing House Bill No. 7845, known as the Hatch anti option bill, on the ground that the proposed legislation would directly precipitate financial disaster throughout the country, would largely increase the charges to the farmer in marketing his product, would further reduce values to the farmer by compelling him to accept prices at a time when his deliveries were far beyond the requirements of consumers, would greatly restrict trade with foreign countries, etc.

Favoring a Department of Commerce and Manufactures in the National Government.

Favoring uniform legislation regulating issuance of receipts by public warehouse and delivery of goods thus represented.

Proposing Congressional enactment securing accountability of common carriers to owners or consignees for prompt delivery of property received for transportation, by a proper demurrage charge for delays.

Favoring amendments to the Interstate Law providing for improved efficiency and dispatch

in service of carriers; freedom from unreasonable declarations of exemption in contracts for interstate carriage; simplification of methods of procedure before the commission; the giving of conclusive or progressive effect to findings and orders of the commission; removal of existing legislation proven to be detrimental to interests of the public and obstructive to efficiency of service; necessity of approval by the commission to render valid or lawful changes in rates, rules, or conditions affecting the cost or valuation of transportation service to the public.

Also, to amend the interstate law by exempting the shipper from its criminal penalties, to the end that his information as to its violations may be made available in courts; to make corporations indictable and subject to exemplary fines for violations of the law by officers or agents.

Approving the objects of the Interstate Law and recommending its maintenance.

Declining that the forced withdrawal of distilled spirits from bond, by payment of tax or exportation, is detrimental to financial and business interests.

Favoring protection to American merchant marine, including means contemplated in the Tonnage Bill before Congress.

Recommending national quarantine regulations, and that vessels from foreign ports should be under jurisdiction of the national authorities.

Favoring Congressional provision for commercial relations with neighboring countries on broad and comprehensive principles of reciprocity.

The regulation of immigration, including authority to the President to suspend by proclamation immigration from any country, district, place or port, until the close of the next ensuing session of Congress, or for a shorter period.

Favoring Governmental aid and control of the Nicaragua canal.

Recommending Congressional appropriation to defray expense of survey and estimates of the cost of construction of a ship canal wholly within the territory of the United States, from the great lakes to the navigable waters of the Hudson river. Several propositions submitted, including a recommendation that Congress make immediate provision for the construction of a ship canal on American territory around the Falls of Niagara; the conversion of the Erie canal into a ship canal, etc.

Favoring Congressional consideration of the projected canal from Lake Erie to the Ohio River, as surveyed by a commission of the State of Pennsylvania.

Recommending the establishment of a road department at the National capital, and Congressional appropriation for a road exhibit at the Columbian Exposition. Also, favoring any measure tending to remedy the deplorable condition of public highways.

The revision of the monetary system by Congress, with a view to securing greater simplicity and greater stability in its character, and more complete adaptability to wants of commerce.

Recommending Congress to create a commission to consider the banking system of the country, and report a plan as a basis of supply of currency sufficient in volume and sure of prompt redemption in specie.

Favoring the repeal of the law providing for the purchase of silver, and the cessation of silver coinage until some international agreement, or requirements of trade, demand further coinage. That the proposed free and unlimited coinage of silver is a reckless invitation to commercial disaster, etc.

More liberal provision by Congress for support of the State Militia and National Guard.

The adoption of an American system of navigating naval reserves.

The necessity of a judicious anti-adulteration law. Also, enactment of proper laws by Congress for preventing adulteration and misbranding of foods, drinks and drugs.

More complete statistics by the Department