

## CONSERVATION

by  
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Conservation is a way of life affecting much more than the soil. To show its inclusive character the following mnemonic or, "aid to memory", may be helpful:

**C**-oal  
**O**-il  
**N**-atural gas  
**S**-oil  
**E**-arth's minerals  
**R**-ubber  
**V**-egetation (grass)  
**A**-nimal life  
**T**-rees  
**I**-nland waters ]  
**O**-urselves  
**N**-ational survival

The first three of these resources, coal, oil, and natural gas are strictly consumable resources--all three are still used most wastefully due to lack of insulation; overheating; inefficiency of heating equipment; inefficiency of power equipment; or deliberate waste.

Soils are a resource which can be rapidly destroyed, and only very slowly rebuilt; the wiser course is the prevention of destruction through conservation.

Earth's minerals are mined for a wide variety of uses in industry. Once taken out of the earth these resources, although not destructible, can nevertheless be subject to non-economic or even anti-social uses. They can be wasted in either war or peace.

Rubber in its most common natural form is not a resource native to the United States--previous to World War II we were enormous consumers of this important world resource--under the impetus of World War II plus earlier researches by the rubber industry, we have learned how to make synthetic rubber from other resources. The extent to which these other resources might be devoted to use as food or as a source of energy will depend upon the need for rubber in national defense.

All vegetation derives its support from the soil--that vegetation, especially the grass cover and the forest cover, in turn cooperates with the soil by ultimately becoming a part of it through the natural processes of decay. Grasses, with their unique capacity to bind the soil, once covered our Great Plains--the advance of a cash-crop economy onto these Plains has resulted in the destruction of most of the original grass cover except that thinner cover in the more arid and more western part of the Plains. Return to grass is a slow process--yet evidence is already being produced which indicates too rapid a loss of nitrogen and organic matter under cropping to the cereals and other crops.

The necessity of conserving our native wild animal life and our forests is briefly discussed later on in this article.

### **The Long Wasted Resource**

The Resource of all Resources—our Rivers and Lakes—features which give distinctive character to our landscapes have been about the last to be considered a conservable resource. Rivers, of course, must ultimately run to the sea but on their way they may cause damage, run idly, or do useful work.

### **The Multiple Use of River Basin Water**

The idea of treating the water supply of a river basin as a resource capable of multiple uses is essentially a conservation idea. When worked out in its entirety it must involve the handling of the basin lands upon which precipitation falls as well as the handling of the waters in the stream—the one cannot be separated from the other. The relative emphasis upon the several factors affecting the use of the land and use of the stream may be quite different in different river basins but the fundamental principles will remain the same.

Conservation of river water of the main streams always begins with the mountains and the foothills whose cover of forest and grass act as the first retardant to the downstream progress of a river basin's water supply. Proper management, especially that of the forest, will do much to maintain a reserve supply of snow. Grassland management in the forest and beyond the forest into the plains will provide for further infiltration of water into the soil. Agriculturally occupied and cultivated lands must not be neglected for they are one of the sources of the silt and mud reaching our rivers. It is unfair and unrealistic however, to assume for example that all of the mud and silt load carried by the Missouri River is derived from erosion of tilled lands. The enormous load of silt discharged into the Missouri River by the Yellowstone River is derived in part from thinly-clad, or almost desert areas of much of Wyoming, where the precipitation is insufficient to support a greater soil cover, and where precipitation is frequently torrential in character. Both upstream land management and stream management through the use of siltation dams must be used to the maximum to insure clearer waters for downstream use.

Once water gets into the stream the work of stream management begins—this includes diversion of some of the water for irrigation; storage in great reservoirs behind dams for a source of irrigation water; for flood control, for power, and for navigation control; for municipal use including domestic water supplies and sewage dilution.

### **Ourselves**

All this interest in conservation would be vain indeed if we as a people fail to give heed to the necessity of human conservation through the elimination and control of disease, through the general use and provisioning of adequate nutrition, exercise, and wholesome recreation, and finally a suitable education in and the general adoption of peace.

The human resource is still being wasted by the ravages of disease, ignorance, and war. We shall not be true conservationists until we recognize these primary causes of human wastage.

### National Survival

The conservation of ourselves and of our physical resources will make a large contribution to our survival as a nation. These physical factors are certainly not the only factors in national survival—a great array of factors not so easily appraised—psychological, political, sociological, religious, and economic—both national and international in scope affect our welfare and hence national survival. It is not the present purpose to discuss these non-physical factors but it is timely to suggest that they be approached in the true spirit of conservation.

## URINARY CALCULI OF LAMBS

by  
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### Description of the Disease

The presence of mineral deposits in the kidneys, ureters, urinary bladders or urethrae is spoken of as urinary calculi or urolithiasis. The uroliths may form as large single, stone-like aggregates, or they may form as multiple smaller gravels or even clay-like deposits. Unless the uroliths interfere with the passage of urine they do not appear to interfere with the health of the animal. If the stones cause stoppage of urine they produce an accumulation of fluid in the tissues or abdominal cavity and the condition is often called "water belly" by sheepmen. We do not have accurate information as to the exact losses caused by uroliths but the number of requests for information regarding this disease is sufficiently high to indicate that losses resulting from urinary calculi are sufficiently high to be of considerable economic importance.

Field reports indicate that losses from urinary calculi are much higher in western North Dakota than they are in the eastern portion of the state. However, there have been reports of losses due to urinary calculi from nearly all of the Red River Valley counties.

Urinary calculi formation appears to be a response to a number of predisposing causes. The causes enumerated by Newsom (1) are as follows: hard water, vitamin A deficiency, mineral imbalance, reaction of urine (pH), hyperparathyroidism and infection. Experimental work directed at producing urinary calculi has followed the general topics listed above, but most investigations have failed to establish any one factor as the primary predisposing agent in the formation of urinary calculi.

### Ten Years' Experiments and Observations in North Dakota

This report summarizes experiments conducted in this laboratory during the past ten years and discusses our observations under the various hypotheses enumerated by Newsom.

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