April 14, 1926.

Dean C. M. Thompson
214 New Commerce Building,
University of Illinois.

Dear Dean Thompson:

So many important investigations have been in progress in the Department of Chemistry during the last ten years that it is almost impossible to make a satisfactory selection for a report. In December 1923 Professor Adams prepared a report covering thirty-six (36) pages upon the investogations then in progress in the department. The following list of unusually important researches may perhaps serve your purpose, but it should be understood that it is very imcomplete and that a good many other items of equal - and some of perhaps greater - importance are omitted.

Industrial Division

1. Professor Parr's development of a method for the low temperature coking of coal, which gives a good coke from Illinois coals and a largely increased yield of by-products.

2. A study of the conditions necessary for the safe storage of coal.

3. Development of an acid resistant alloy called "Illium" for the manufacture of Bomb calorimeters and other properties.

4. Development of a recording gas calorimeter.

5. Determination of the heat of combustion of metals.

Physical Division

1. Determination of the temperature-entropy diagrams for nitrogen and oxygen. Very important for the manufacture of cheap oxygen and this in turn is likely to be important for the

ufacture of fuel gas and for metallurgical processes.

2. Determination of the magnetic properties of atoms of metals in the gaseous state.

3. A study by Dr. Dietrichson of the properties of ammonia solutions having a bearing on problems of refrigeration.

4. A determination of the heat formation of nitrogen trichloride.

Organic Division

1. Synthesis of emodin, an active principle in many drugs used as cathartics.

2. A study of the poisons and promoters for platinum as a catalyst.

3. A synthesis of compounds related to chaulmoogric acid, a remedy for leprosy.

4. A synthesis of butyn, a valuable local anaesthetic.

5. A study of optically active dyes which proved that the absorption of dyes by fibres is physical and not chemical.

6. A study of molecular rearrangements in the camphor series.

7. A study of compounds illustrating positive and negative valences and the discovery of optically active diazo compounds.

Analytical Division

1. The development of volumetric methods for determining alkaloids using silico-tungstic acid.

2. The development of analytical methods with the use of perchloric acid.

3. A study of transference numbers in solutions of mixed electrolytes.

Physiological Division

1. Demonstration that the amino acid histidine is an indispensable constituent of our diet.

2. The relation of protein consumption to creatinuria.

3. Nephritis caused by tartrates and glutarates.

4. The effect of caffein upon renal function.

Inorganic Division

1. The discovery of Illinium, the last of the rare earths elements and the only chemical element ever discovered in America.

2. The preparation of rare earth metals by electrolysis of fused chlorides.

3. A study of selenium and tellurium compounds for use as insecticides.

4. A study of nitrogen trichloride in connection with the theory of positive and negative valences.

State Water Survey (sanitary)

1. Demonstration that by rpoviding more surface for biological growths in proportion to volume of sewage treated, the efficiency of a plant of a given size may be greatly increased.

2. Determination of the proper depth of filters to be used in the treatment of sewage.

W. A. Noyes