mon onion (*Allium cepa*), all three stages having been produced. Mr. E. W. D. Holway reports that he collected æcidia on 'winter onions' the latter part of May and the writer collected two specimens about a month later. In each of the above instances asparagus was growing near 'winter onions.' The great similarity of the asparagus rust (*Puccinia asparagi*) and the onion rust (*P. porri*), together with the results obtained by inoculation and the æcidia recently collected on the onion, is very suggestive of the identity of the two rusts. But Klebahn* has been able to inoculate several species of *Allium*, including *A. cepa* with *Melampsora*, producing a *Cæoma* in each case, so that it appears that the *Alliums* are very susceptible to the attack of the rusts when inoculated.

The writer is conducting experiments along the same line with other liliaceous plants, but as yet results are not ready for publication.

Inoculations of a number of species of *Dianthus* and *Gypsophila* with the uredospores of the carnation rust (*Uromyces caryophyllinus* (Sch.) Schroet.) have given the same general results, so far as the effect of temperature, sunlight and susceptibility is concerned, as was obtained for the asparagus. It has been demonstrated that the carnation rust is local instead of being distributed through the plant, and that certain varieties are practically immune.

There is often associated with both the asparagus and carnation rusts another fungus (*Darluca filum* Cast.) thought to be parasitic on the rust. Some observations have led the writer to conclude that it is not parasitic on the rust and that it is not so beneficial as is generally supposed. Its saprophytic tendencies have been demonstrated by growing it on various culture media, both animal and vegetable, including bouillon-gelatine and bouillon-agar, asparagus-agar, potato, canned asparagus stems, etc. On some media it produced pycnidia in three to five days. Spores from pure cultures when inoculated on rusted asparagus gave the characteristic pycnidia with the curled masses of spores issuing from them. Only negative results have as yet been obtained on the stems of living asparagus, although it flourishes on the cooked stems, and there are strong indications that it may be parasitic on asparagus. A complete account of the work will be published later.

JOHN L. SHELDON.
THE UNIVERSITY OF NEBRASKA,
LINCOLN.

* Klebahn, *Zeitschrift für Pflanzenkrankheiten*, 12: 1, 17, 1902.

*CHEMICAL INDUSTRY IN GERMANY IN 1901.**

RECENTLY published statistics of the chemical industry in Germany for the year 1901 show that it has shared in the general business depression of the Empire, though the results are less unsatisfactory than in other branches of manufacture.

Among the reasons assigned for the depression are a tendency toward overproduction, the increased cost of raw materials, the high price of coal and of labor, and proposed changes in the tariffs on many articles which enter into chemical manufacture. It is also pointed out that in the United States, in Russia, and in several other countries, there is a growing interest in this branch.

The following figures show the imports and exports for the years 1900 and 1901. The articles included are the more important drugs, pharmaceutical supplies, and dyestuffs or materials entering into the manufacture of the same:

Year.	Imports.		Exports.	
	Quantity.	Value.	Quantity.	Value.
	Metric tons.		*Metric tons*	
1901	1,219,889	$66,164,000	889,550	$88,298,000
1900	1,114,554	62,832,000	834,229	83,776,000

While these figures show an excess of exports over imports, and a gain in exports for the year 1901 over the preceding year, the cost of raw materials and of labor has left manufacturers but small returns for their investments.

Statistics of dividends paid by concerns engaged in this branch of manufacture during the year 1901 are not yet fully announced, but

* Consular Report from H. W. Harris, Mannheim.

it is claimed that they will not differ greatly from those of the preceding year, when they showed a falling off. One hundred and twenty-one stock companies, having a combined capital of about $83,000,000, paid in 1900 an average dividend of 12.33 per cent., as against 13.32 per cent. in 1899. Nineteen companies paid no dividends in 1900; 20 paid less than 5 per cent.

As will appear from the following figures, the gain in imports in 1901 was marked in certain articles, particularly in coloring matters:

Article.	Gain in Imports in 1901.
Ammonium sulphate	$1,071,000
Peruvian bark	238,000
Iodine	178,500
Chile saltpeter	178,500
Superphosphate	476,000
Cyanide of potassium	357,000
Chloride of lime	178,500
Explosive materials	238,000
Alizarin	476,000
Aniline	952,000
Zinc, white	238,000

As is well known, the manufacture of dyestuffs, and especially of coal-tar products, has been a specialty of the Germans. This branch of chemical industry has shown a marvelous growth and has apparently yielded good returns on the money invested.

The exports of aniline colors for the past six years have been:

Year.	Quantity.	
	Metric tons.	*Value.*
1901	25,029	$19,213,000
1900	23,781	18,402,000
1899	22,705	17,839,000
1898	19,712	17,131,000
1897	17,639	15,969,000
1896	16,232	15,460,000

The German manufacturer of chemicals is dependent upon foreign countries for most of his raw product and for an outlet for his goods; he is also hampered by the high price of fuel and freights, and he realizes that his main reliance is the supply of trained chemists in Germany. A summary of the statistics of this industry in the United States, taken from the recently published census returns, has been published somewhat widely in Germany; and the certainty of vigorous and increasing competition on the part of the United States in this important branch is admitted.

SCIENTIFIC NOTES AND NEWS.

We have noted that four men of science—Lord Kelvin, Lord Lister, Lord Rayleigh and Sir William Huggins—have been included in the new order of merit founded by King Edward at the time of his expected coronation. Attention should further be called to the fact that in addition to these four men of science there are in the order three generals, two admirals, two men of letters and one artist. Science consequently appears to be in advance of any other department in the number of those selected as especially noteworthy, and to represent one third of the most eminent men (excluding statesmen) in Great Britain.

It is said that Captain Willard Herbert Brownson, now commanding the battleship *Alabama,* has been selected as superintendent of the Naval Academy at Annapolis, to assume his duties in October. Captain C. H. Davis, superintendent of the Naval Observatory, will, it is understood, succeed Captain Brownson in command of the *Alabama.*

Despatches from Germany report that Professor Virchow has had another fall and is very seriously ill.

A title of nobility has been conferred on the Asiatic explorer, Dr. Sven Hedin.

Mr. Gifford Pinchot, chief of the Bureau of Forestry, is at present in Minnesota conducting experiments on reforestation. He will later go to the Philippine Islands to prepare a report on the forest conditions.

Dr. Whitman Cross, of the U. S. Geological Survey, will spend part of the year in the Hawaiian Islands studying volcanic phenomena.

Mr. J. A. L. Coolidge, instructor in mathematics at Harvard University, has been granted leave of absence, and will spend two years in study abroad.

The centenary of the establishment of the Paris Council of Hygiene was celebrated on July 7. On this occasion gold medals were presented to Professor Proust and M. Schloesing.