letter referred, contained the same statement, indicating in addition that the 300 per cent. additional charge would become effective on and after May 1, 1921.

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QUOTATIONS

CENTENARY OF THE FRENCH ACADEMY OF MEDICINE

OUR Paris correspondent has told of the celebration, beginning Dec. 20, 1920, of the most important anniversary connected with French medicine—the centenary of the Academy of Medicine, which has the same preeminence in medicine that the general French Academy bears in relation to the more liberal arts. Its roster bears only the names of those who have by years of achievement won recognition in the profession, and there are few below middle life who have been accorded the honor of election. Trousseau, who received the academy prize in 1837 for his classical treatise on laryngeal phthisis, was considered unusually fortunate in that he gained admission in his thirty-sixth year. The academy was founded in 1820 by royal edict of Louis XVIII., although its name appeared as early as 1804 as an entirely ephemeral institution, the chief interest attaching to it being that Dr. Guillotin was one of its presidents. The French Revolution, with its ruthless submergence of all that pertained to the old order of things, dissolved all medical associations, and among these the Academy of Surgery and the Royal Society of Medicine, which after nearly a century of existence disappeared, to come to life again in the founding of the present Academy of Medicine. The initial concept of the academy was the formation of a body which, by its scientific labors and achievements, should be an asset to the state in matters of public health. The decree which constituted it lays down certain functions which it was to carry on. Among them were improvements in the method of vaccination against smallpox, the measures for the control of epidemic diseases, regulations as to and concerning legal jurisprudence, and the examination of and passing on new remedies, together with the limitation of the sale of nostrums, both those of French and those of foreign origin. While the present academy still holds the latter function, its work, to a large degree, is hampered by the administration of French law, as was pointed out in a former editorial.

The *Bulletin* of the Academy for Dec. 20–22, 1920, is devoted to a review of the history and labors of the society since its foundation. It records a century's achievement by men whose names are known the world over: Pinel, Laënnec and Broussais in the early days; Trousseau in the thirties; Villemin and Pasteur, and on down through the list of those who have added to the sum of certain knowledge which has lifted medicine from scientific guesswork to the dignity of a precise science.—*Journal of the American Medical Association.*

SPECIAL ARTICLES

RESISTANCE TO STEM RUST IN KANRED WHEAT

A CYTOLOGICAL study of *Puccinia graminis tritici* on Kanred wheat, conducted by the Office of Cereal Investigations in cooperation with the California Agricultural Experiment Station, has yielded several facts of interest.

The strain of stem rust under observation and herein reported was obtained from the Berkeley breeding plats. Seedlings of susceptible varieties of wheat grown in the greenhouse produced abundant pustules but, in repeated trials with Kanred, the fungus failed even to produce flecks.

It was found that the urediniospores germinate readily on Kanred leaves and that the germ tubes make their way directly to the stomata. On reaching a stoma, the tip of the germ tube swells to form an appressorium and practically all of the protoplasm flows into it, leaving the germ tube empty. Under favorable conditions for germination these appressoria develop promptly and in great numbers. Often one may observe two, three, and even four spores, with their appressoria, crowded together at a single stoma.

In spite of this, relatively few appressoria enter the stomatal slit in Kanred to form my-

celium within the host. Six days after inoculation, only five out of a hundred appressoria had entered. Material taken eight, ten, and even twelve days after inoculation still showed numerous appressoria and a relatively limited number of infections. For greater accuracy, counts were made and the results tabulated as follows:

No. of Days after Inoculation	Total No. of Sporelings Counted	No. of Entries	Percentage of Entries
6	100	5	5
8	133	14	10 +
10	77	7	9
12	145	16	11 +

Under the conditions of this experiment, only about ten per cent. of the young rust fungi enter. The other ninety per cent. remain outside the stomata until they dry and fall off. By the twelfth day, under greenhouse conditions, practically all the appressoria are withered and collapsed.

Tangential sections of Kanred and Mindum leaves were examined. In these the stomatal slit was measured in length, in width at center and at its widest point, which is near the end, and averages taken. The same was done with Mindum, a durum variety somewhat resistant to this strain of rust. The stomatal aperture in Kanred is extremely long and narrow, while that of Mindum, a less resistant variety, is short, and very variable in width, the average width being about *twice* that of Kanred. In Mindum, the rust sporeling enters freely, while in Kanred nine tenths of them are excluded. It is possible that the naturally small stomatal opening of Kanred is still further narrowed by the action of the guard cells when an appressorium comes in contact with the stoma. A more comprehensive and fully illustrated account, including similar observations on other varieties of wheat, and reporting resistance phenomena which follow actual infection, is now in preparation.

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THE AMERICAN CHEMICAL SOCIETY

ROCHESTER MEETING

DIVISION OF PHYSICAL AND INORGANIC CHEMISTRY

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Symposium on Contact Catalysis

Platinum black and carbon monoxide. Esterification by silica gel: C. H. Milligan and E. Emmet Reid. A mixture of equivalent amounts of acetic acid and ethyl alcohol has been passed over silica gel at 150°, 250°, 350° C. It has been found that silica gel is a very active catalyst, more than twice as active as titania, the best catalyst previously known for this reaction. When the mixture is passed rather slowly at 150° the percentage of esterification is 75 to 80, which is much beyond 67 per cent., the accepted limit for this reaction.

Adsorption by oxide catalysts and the mechanism of oxidation processes: A. F. Benton.

Dissociation of some mixed oxides: J. C. Frazer.

The adsorption of gases by metallic catalysts: H. S. Taylor and R. M. Burns. The adsorptions of hydrogen, carbon monoxide, carbon dioxide and ethylene by finely divided nickel, cobalt, iron, copper, palladium and platinum has been found to be of a specific character quite different in nature from adsorption by porous inert adsorbents of the charcoal type. The extent of adsorption was shown to be a function of the mode of preparation and to be especially less pronounced the higher the temperature at which the metal was prepared. The analogy of this fact with the corresponding facts of catalytic behavior has been noted. Adsorption isotherms at 25° C. of hydrogen with nickel, and of carbon monoxide with copper have shown that adsorption increases rapidly with increasing partial pressures below 300 mm. and becomes practically independent of pressure above this pressure.

The action of nickel on diethyl ether: A study in contact catalysis. Preliminary report: Francis L. Simons. A report is given of preliminary work in the study of the catalytic decomposition of ether by nickel. The study was undertaken in the hope of throwing light on the mechanism of the action of nickel on alcohol and the simpler esters. The apparatus used is described in detail and the general procedure given. From the results so far, it appears that ether is decomposed into H_2, C_2H_4 and CH_3CHO, as Bancroft suggests. The compo-