From Past Issues

Faces from the Past

by Kathryn R. Williams

A few months ago, one of the local elementary schools asked me to participate in a career day for fifth-graders—you know, to put on some demonstrations and tell the kids about the cool things chemists do for a living. Our lecture hall supervisor furnished me with some portable demonstration materials, and I padded my usual list of careers with ideas I found in "The Chemist at Work" in volume 15 of *JCE (1)*. This year's National Chemistry Week theme, "The Many Faces of Chemistry", provides a fitting occasion to share this historical source.

In the introduction to their series *(1),* professors Roy I. Grady and John W. Chittum explained their motivation to collect personal accounts from 24 chemists in as many vocations: "In spite of the increasing amount of material on what chemistry has done and may do in the future, there seems to be a dearth of information on what the chemist himself does and how he does it." The personal reports, each one or two pages long, appeared in five issues between April and September, 1938 *(2)*. Grady and Chittum chose authors representing "as many different degrees of attainment as possible," including life-long professionals, workers with only a few years' experience, Ph.D., M.S., and B.S. graduates—and four women, surprising for that time.

Instead of enumerating the complete list of careers, all of which can be found from the tables of contents of the 1938 issues, I will focus on descriptions of two jobs of especial interest because they are almost unknown today.

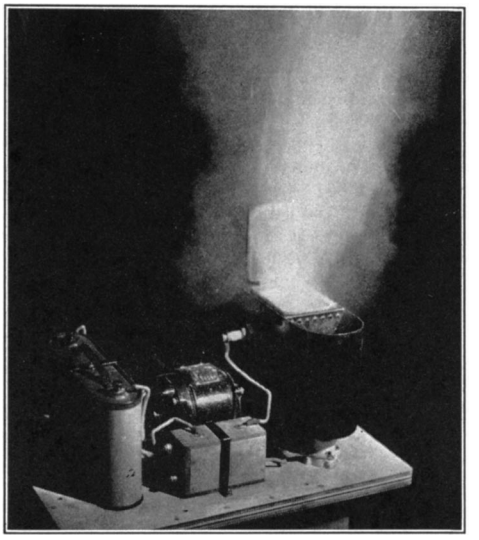

Figure 1. Apparatus for testing explosion hazard of dusts. A revolving paddle in the covered chamber beat a sample of the dust into a cloud, which was then ignited by a spark. An explosion was immediately evident by the violent lifting of the hinged lid, as shown here for a cloud of corn starch powder. (*J. Chem. Educ.* **1938,** *15,* 170.)

Chemistry in the Insurance Business, Warren A. Hough *(3)*

In the 1930s, insurance companies maintained their own laboratories to perform tests and to guide policy-holders in developing safe operating procedures and consumer products. Chemical engineer Warren Hough, a laboratory employee at the Travelers Insurance Co., described some of the laboratory's many activities and responsibilities. A short list would include: testing of boiler feed water, evaluation of water treatment methods, analysis of pharmaceutical products, and examination of industrial process materials for health, fire, and other safety hazards. For example, Figure 1 shows an apparatus for testing the explosion tendency of powdered materials.

Hough stressed the wide variety of tasks in the Travelers' laboratory: "There is almost no material in use which may not sooner or later require analysis by the insurance chemist....There are probably few jobs open to the chemist as interesting in variety of work encountered as those in the insurance companies." A chemist seeking such employment "should have the broadest possible chemical training...with special emphasis on all types of analyses and on industrial chemistry."

My Work with *Chemical Abstracts*, Janet D. Scott *(4)*

Remember the days (and days and days) of literature searching with the printed *Chemical Abstracts* (*CA*): hefting the tomes from the library shelves, combing the subject index via a myriad of keywords, locating abstract numbers with as many digits as your driver's license? If so, you can begin to appreciate the tasks confronting Associate Editor Janet Scott and her coworkers at *CA*'s main office.

In the 1930s, Scott's office processed about 6500 abstracts per year. The abstracts found suitable for inclusion in the biweekly compilations had to be edited for length, format, and grammar, checked for chemical correctness, and assigned to the appropriate section of the *CA* book. Further proof-reading was required after type-setting.

The two-week cycles continued while staff also prepared the annual and decennial indexes that we used for our literature searches. Scott's specialty was the subject index, and her account describes concerns such as choice of subject terminology, cross-referencing, and modifications to accommodate new areas of study. Initial annotations on the printed abstracts were typed

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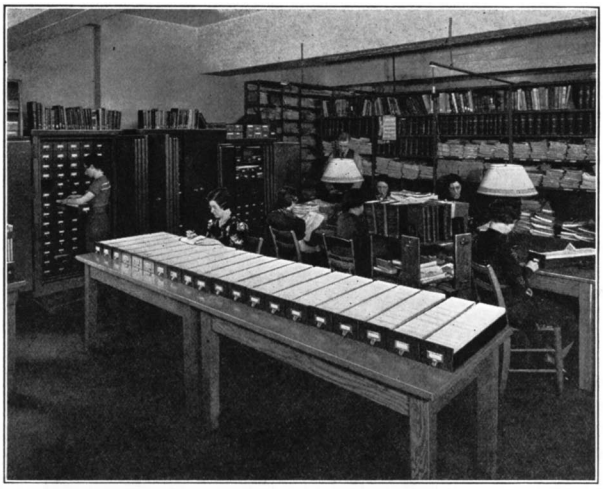

Figure 2. Boxes of cards with annotations for the annual subject index to Chemical Abstracts. (*J. Chem. Educ.* **1938,** *15,* 274.)

onto index cards (actually thin paper to take up less storage space) for checking and sorting. Figure 2 shows 20 of the more than 400 boxes of cards. The index assembled from the cards required multiple stages of proof-reading and correction, and the cards themselves were saved and reedited for the decennial index.

For a student interested in a career at *Chemical Abstracts,* Scott stressed the need for a broad background in chemistry, chemical engineering, and library science, as well as familiarity with other sciences such as physics, mineralogy, and biology. And she further remarked, "Fully as important as the scientific training, however, is that in English and foreign languages. Technical or critical writing courses with careful attention to sentence structure, clarity, brevity, and correct use of words would be the best type."

Personal Attributes

In addition to a summary of the necessary knowledge and skills for success in their jobs, Grady and Chittum asked the contributors to give their opinions of desirable personal attributes. To handle the diverse tasks faced on a daily basis in the insurance business, Hough's choice "should be resourceful, possess great adaptability, and be able to work with considerable speed". About characteristics for employment at *Chemical Abstracts,* Scott said, "accuracy perhaps should rank highest, and with that conscientiousness, patience, a meticulous attentiveness to detail...".

Although it was not included by Hough or Scott, I was impressed by the number of other contributors who ranked honesty at or near the head of their list. For example, Earle Whittier wrote that a researcher in a government lab "must, first of all, be wholly honest and free from prejudice in relation to others and to himself: that is, for example, he should never allow a preconceived notion as to the results of an experiment...to influence his interpretation of data obtained" *(5).* S. R. Scholes, who wrote of his career in the glass industry, also put honesty at the top of his list, because "unless a chemist is completely honest, he will end by deceiving not only others, but himself; his results will be entirely without value, and he can hope for no advancement whatever" *(6).* Likewise, Franklin G. Hills, a chemist in a lead-silver smelter, wrote, "Honesty is perhaps the most desirable qualification of any chemist. A dishonest chemist is almost unthinkable. In his work he should always report his result, right or wrong" *(7).*

I admit that I did not expect to see such frequent emphasis on honesty. But, considering instances of research misconduct like those recently reported in *Chemical and Engineering News (8),* we can all stand to be reminded of the importance of fundamental human virtues in the university and workplace, as well as in our personal interactions with others. I recommend reading some of the personal accounts, not just to obtain ideas about career possibilities, but to regain an appreciation of human values as seen by professionals seven decades ago.

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