KHEMYE: CHEMICAL LITERATURE IN YIDDISH

Stephen M. Cohen

English, along with a few other languages (*e.g.*, German, French, Russian, Japanese, and Chinese), is the primary vehicle for transmitting chemical knowledge and discoveries today. Yet languages are not neutral carriers of information; the very act of choosing a language for instruction implies an educational, ethnic, and perhaps even a social class among the users. Given the impetus and the means, any language is capable of explaining complex scientific phenomena. This article aims to provide a modest history of the chemical literature, confined to the 20th century, written in a lesser-known language, Yiddish, now considered endangered.

Yiddish's origins, dating back about a millennium, are unclear. Linguists are still arguing over the details of where and how it started, but most would agree that medieval southern and west-central Germany are likely candidates. The language of most Central and Eastern European Jews, it flourished in the 19th and early 20th centuries, until Nazi massacres, Stalin's purges, and immigrant assimilationism markedly reduced the present number of native speakers. Yiddish is considered a "fusion language," for it has fused together medieval German dialects, some Slavic vocabulary and grammar, a Hebrew-Aramaic component, and even some words of Romance origins.

The cultural and social milieu that engendered scientific writing in Yiddish began as the 18th-century Western-European Enlightenment gradually filtered eastward into the Russian Empire during the 19th century. At that time, Jews in the Russian Empire were serfs, peasants, or poorly educated city dwellers. They were, as a rule, not educated in secular or scientific studies, nor even in the local official or semi-official languages of Russian or Polish. Universities held to strict quotas for the number of Jews allowed entry per year. Those few Jews who had traveled to Western Europe brought back with them the wonders of 19th-century natural and social science and accompanying technology (1). Simultaneously, the terrible anti-Semitism of the Russian pogroms from 1881–1897, and France's infamous Dreyfus affair (1894) increased the nationalistic desires of many Jews, culminating in Theodore Herzl's Zionist Congress in 1897. Emigration to the United States rose dramatically, intensifying after further Russian pogroms from 1903–1905. Most immigrants stayed in the largest American cities, such as New York, Boston, Philadelphia, and Baltimore. Their sweatshop working conditions in America and extreme poverty in Russia were dreadful (2). Many joined the socialist and communist movements in order to overthrow the oppressive Russian Imperial and capitalist social orders (3). To improve their lot, many Jews set up educational organizations to instruct their brethren in these new technological wonders and to bring them out of their allegedly superstitious, ignorant environment. Thus, interest among the better-educated Eastern-European Jews developed in socialism, communism, and secular studies—which included science in general, and chemistry in particular.

From this cultural milieu came Yiddish science books. Though the Eastern-European Jews fortunate enough to gain entry to local universities through the strict quota systems learned enough Russian, French, and German to communicate with their fellow scientists, some decided to write for laymen ill-versed in these languages. Many of the authors listed in this article have fallen into obscurity, and details about their lives are unknown. The first known textbook in Yiddish devoted entirely to chemistry was published in 1920 by a chemist (and a member of the American Chemical Society), philanthropist, and devotee of American history, Sol Feinstone (1888–1980) (4). Entitled *Khemye: Tsu Lezen un tsu Lernen* ("Chemistry: To Read and to Learn") (5), the goal of the work was "to give the Yiddish reader a short, popular treatment on the great chemical science, about which, until now, so little has been written in Yiddish literature." (See Fig. 1.) Basic concepts, from atoms to molecules, reactions, inorganic and organic chemistry, and even nomenclature, were covered in the 272 pages contained in *Khemye* (6). Figure 2 shows Feinstone's sketch of the Hall Process for reducing aluminum. A table of petroleum distillation products appears in Fig. 3. Discussion of reactions involving chlorine is shown in Fig. 4.

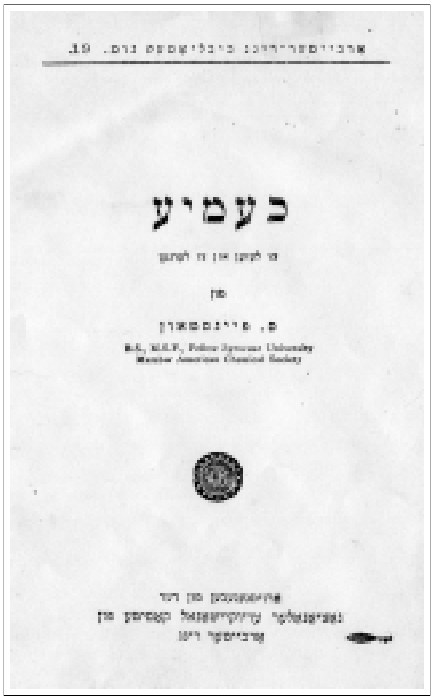


Figure 1. Title page from Sol Feinstone's *Khemye*.

Khemye was actually a part of the "*Arbeter-Ring Bibliotek*" (Workmen's Circle Library) series, published by the Workmen's Circle, a secular Jewish labor organization devoted to helping immigrant Jewish laborers fit into modern American society. Another of this series was Dr. Abraham Caspe's *Geologye* ("Geology") (7). Though not a book about chemistry *per se*, the discussion of minerals, interspersed throughout the geological topics, included their chemical composition (8).

General encyclopedias and volumes devoted to self-education in Yiddish also began to appear, such as the *Folks-Universitet* ("People's University") series (9). Major topics—presented as self-contained chapters—included in the three volumes were chemistry, physics, biology, anthropology, and history.

There were teacher's editions about science in Yiddish as well. Golomb's *Praktishe Arbet af Natur-Limed*

די טעמפּעראַטור אין װעלכער דער פּראָדוקט דיסטילירט זיך (מעטרישע סיסטעם)	דער נאָמען פון פּראָדוקט
ביז 40 גראַד	סימאָגען, רינאָלען און אנדערע גאַזען
" 70 " 40	פּעטראָלעאום עטהער — — — — —
" 80 " 70	נאַפטאַלין — — — — — — — — —
" 100 " 80	פּעטראָלעאום בענזין — — — — —
" 120 " 100	פּעטראָלעאום נאַפטאַ — — — —
" 150 " 120	פּעטראָלין — — — — — — — —
" 300 " 150	קעראָסין — — — — — — — — — —
" 300 איבער	שװערע אײלען (שמיר) — — — — —
" 300 איבער	פּאַראַפין אײל און װאַקס — — — —
שטעלט זיך אָפּ אין רעטאָרטע	קאָקס — — — — — — — — — — —

Figure 2. Schematic of the Hall process in Feinstone's *Khemye*. The caption under the diagram reads, "The electronic flow goes into the cryolite and molten aluminum oxide (ק) through the strips (ש), splits the oxide apart and leaves the box through the wall (וו) and through (—). The molten aluminum pours out through the opening (ע)."

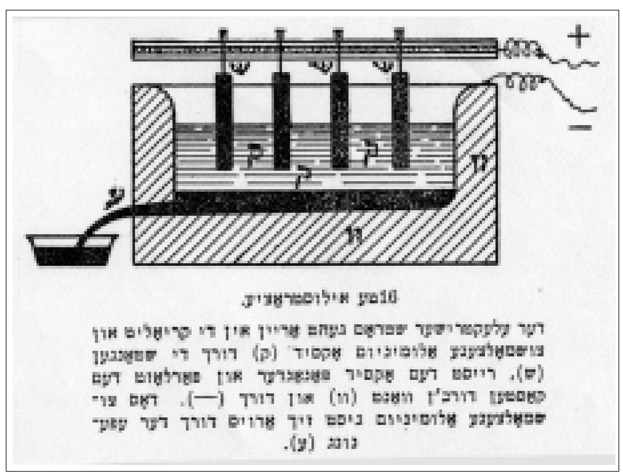
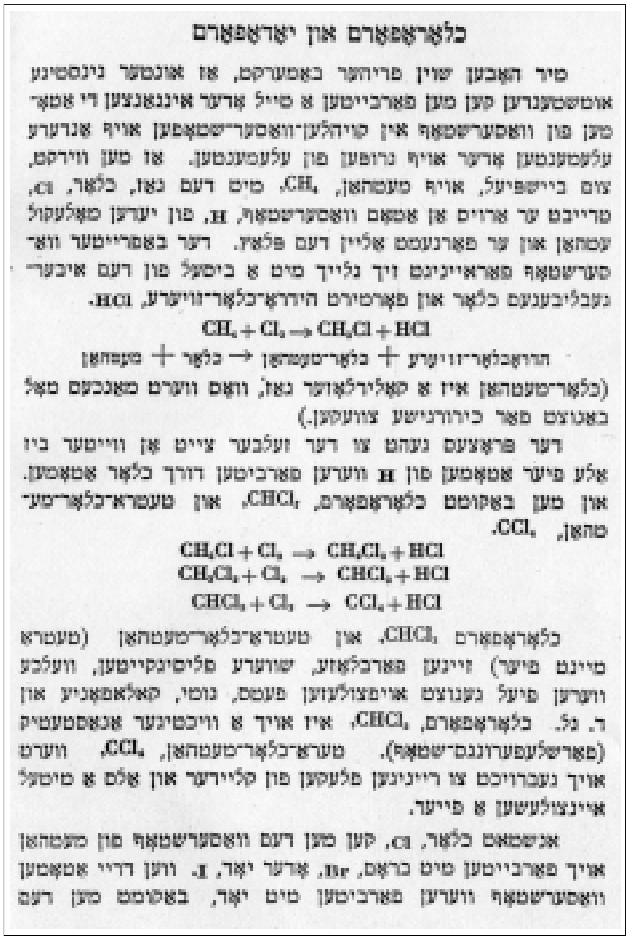


Figure 3. Table of distillation products from crude oil in Feinstone's *Khemye*. The right column is "The name of the product," and the left column shows "The temperature at which the product is distilled off (metric system)."



כלאָראָפאָרם און יאָדאָפאָרם

מיר האָבן שוין פריער באַמערקט, אַז אונטער גינסטיגע אומשטענדן קען מען פאַרבייטן אַ טייל אָדער אינגאַנצן די אַטאָמען פון וואַסערשטאָף אין קוילן-וואַסערשטאָפן אויף אַנדערע עלעמענטן אָדער אויף גרופן פון עלעמענטן. אַז מען ווירקט, צום ביישפּיל, אויף מעטאַן, CH_4, מיט דעם גאַז, כלאָר, Cl, טרייבט ער אַרויס אַן אַטאָם וואַסערשטאָף, H, פון יעדן מאָלעקול מעטאַן און ער פאַרנעמט אַליין דעם פּלאַץ. דער באַפרייטער וואַסערשטאָף פאַראייניקט זיך גלייך מיט אַ ביסל פון דעם איבערגעבליבענעם כלאָר און פאַרמירט הידראָ-כלאָר-זויערע, HCl.

$$CH_4 + Cl_2 \rightarrow CH_3Cl + HCl$$

הידראָכלאָר-זויערע + כלאָר-מעטאַן ← כלאָר + מעטאַן

(כלאָר-מעטאַן איז אַ קאָלירלאָזער גאַז, וואָס ווערט מאַנכעס מאָל באַנוצט פאַר כירורגישע צוועקן.)

דער פּראָצעס גייט צו דער זעלבער צייט אָן ווייטער ביז אַלע פיר אַטאָמען פון H ווערן פאַרביטן דורך כלאָר אַטאָמען. און מען באַקומט כלאָראָפאָרם, $CHCl_3$, און טעטראַ-כלאָר-מעטאַן, CCl_4.

$$CH_3Cl + Cl_2 \rightarrow CH_2Cl_2 + HCl$$
$$CH_2Cl_2 + Cl_2 \rightarrow CHCl_3 + HCl$$
$$CHCl_3 + Cl_2 \rightarrow CCl_4 + HCl$$

כלאָראָפאָרם $CHCl_3$, און טעטראַ-כלאָר-מעטאַן (טעטראַ מיינט פיר) זיינען פאַרבלאָזע, שווערע פליסיקייטן, וועלכע ווערן פיל גענוצט אין צולייזן פעטס, גומי, קאַלאָפאָניע און ד. גל. כלאָראָפאָרם, $CHCl_3$, איז אויך אַ וויכטיקער אַנעסטעטיק (פאַרשלעפערונגס-שטאָף). טעטראַ-כלאָר-מעטאַן, CCl_4, ווערט אויך געברויכט צו רייניקן פלעקן פון קליידער און אַלס אַ מיטל איינצולעשן אַ פייער.

אַנשטאָט כלאָר, Cl, קען מען דעם וואַסערשטאָף פון מעטאַן אויך פאַרבייטן מיט בראָם, Br, אָדער יאָד, I. ווען דריי אַטאָמען וואַסערשטאָף ווערן פאַרביטן מיט יאָד, באַקומט מען דעם

Figure 4. Reactions with chlorine, from Feinstone's *Khemye*. The heading of this section is "*khloroform un yodoform*" (chloroform and iodoform).

(“Practical Work in Natural Studies”) provided a guide for science teachers for laboratory experiments on the metric system, melting and boiling points of various materials, and solutions, as well as a list of necessary materials for the school laboratory (10). Fig. 5 shows Golomb's examples of a cooling curve for water. Golomb's book was a product of the Eastern-European Jewish secular schools, which were quite active between the World Wars.

Perhaps the high point in Yiddish chemistry literature and the most thorough and serious treatment of chemistry in Yiddish was Shmuel Brokhes's 305-page *Khemye: Loytn Laboratorishn Metod* (“Chemistry: According to the Laboratory Method”), written on a high-school senior level (Fig. 6) (11). This textbook was not one written for nonscientists, nor a translation of textbooks from western Europe, but an original Yiddish chemistry textbook, published in Belarus, in the former

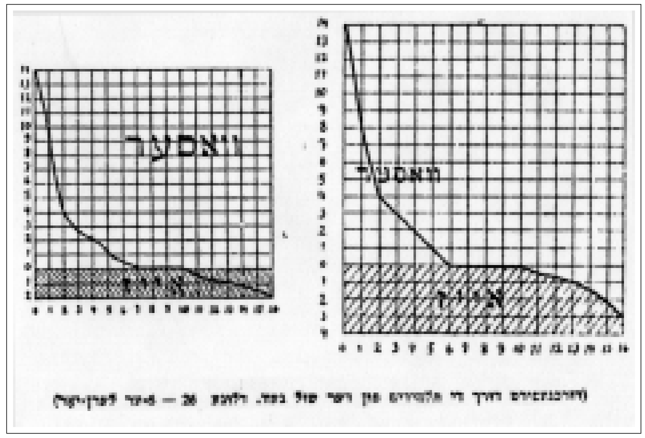


Figure 5. Sixth-year students' cooling-curves of water from *Praktishe Arbet*. The handwritten words on the upper part of the graphs are *vaser* (“water”), and at the bottom, *ayz* (“ice”).

Soviet Union. Brokhes explained in the preface to the teacher that (11):

> This book is constructed according to the laboratory method, and has a technical bent. Everywhere the material is thoroughly taught, offered from practical works that the student himself has to do in the school laboratory.

Brokhes's treatment of the chemistry itself was very descriptive, practical, and nontheoretical, with several paragraphs of explanation followed by a laboratory experiment, repeated a number of times per chapter. Chapters were organized more-or-less according to the important commercial elements and compounds (See Table 1). Fig. 7 is a chart sketching the importance of sulfuric acid. The then new quantum theory was not even mentioned. A small amount of radiochemistry was discussed in a section entitled “radioactivity,” beginning with Becquerel's discovery of radioactivity in 1896 and the Curies' isolation of radium. Brokhes mentioned

Figure 6. Title page from Brokhes's *Khemye*. Interspersed with the formulae for sulfuric acid, zinc sulfate, and calcium sulfate is the word *khemye* (“*chemistry*”)

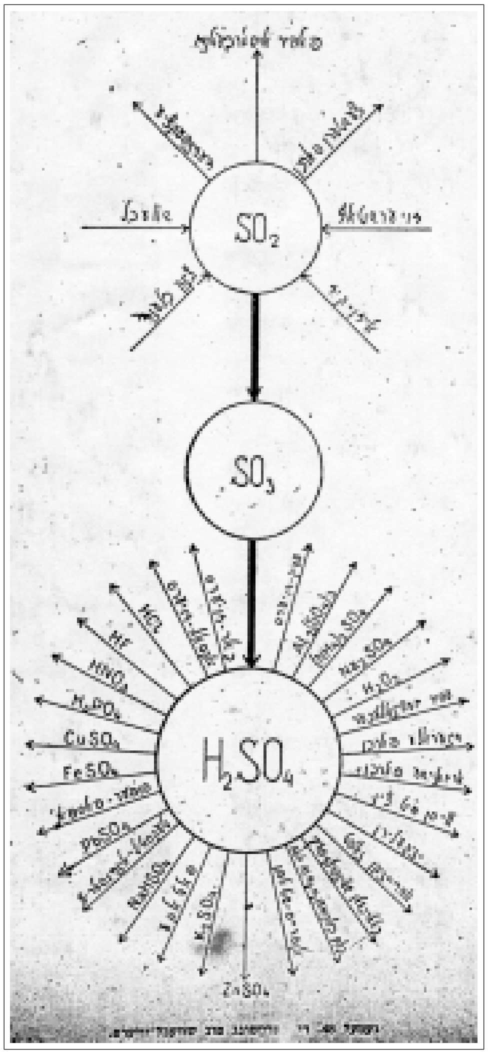


Figure 7. Chart depicting the importance of sulfuric acid, from Brokhes's *Khemye*. Arrows leaving SO_2 point to paper fabrication, dyes, and disinfectants. Arrows entering SO_2 are labeled sulfur, oxygen, iron pyrite, and zincblende.

α, β, and γ-rays, describing α-rays as having the weight of a He atom, β-rays as similar to cathode rays (without further explanation), and γ-rays as similar to light. He noted that U, Ac, and Th are radioactive, with the final decay product being Pb, and that their half-lives are insensitive to pressure, heat, and other common energy sources. Brokhes discussed isotopes of lead (^{206}Pb and ^{208}Pb) and chlorine (^{35}Cl, ^{37}Cl, and he suggests possibly ^{39}Cl) and their relationship to atomic weight. No explanation of radioactivity or isotopes based on the then incomplete knowledge of atomic structure was provided. Perhaps the subject was too controversial, and he intended the astute reader to draw his own conclusions.

Brokhes's textbook was a product of the Soviet educational system, designed to neutralize the peasants' superstitious interests in religion and to instill a materialistic sensibility. Publishing in Yiddish was a logical choice, for most Jews at the time were still poorly educated but fluent in this language. The Jews in early Soviet society were officially considered one of many "peoples" comprising the Soviet Union, so Yiddish became a government accepted medium of secular instruction for Jews for a while. Numerous technical dictionaries and textbooks in Yiddish were published in the 1930s.

The worries of World War I weighed heavily on the Soviet people, for Brokhes also explains that (11):

> [B]ecause of the great significance of chemical warfare methods in a wartime, it is necessary to give the students an idea of the most important explosives and poison gases. In this book a separate chapter (XVIII) is given about them.

Indeed, an entire propagandistic chapter devoted to chemical warfare is provided, with the following introduction (11):

> What does each citizen of the Soviet Union have to remember? For our entire existence, the capitalists have not stopped preparing for war against us. Many facts reveal that during recent times, in concert with our victories on the socialist front from one side and with the economic crisis in the bourgeois countries from the other side, the relation of the capitalist world to us gets ever more aggravated, therefore the revolutionary ascent of the proletariat and colonial peoples of the world has to take care. It is enough to remind one of the wild hate that is driven against us by the spiritual people of all beliefs under the leadership of the Roman Pope; among them the rabbis are counted separately.

Once Brokhes got past this obligatory socialist drivel, he plowed into the chemistry of explosives. Fig. 8 is a table of various explosive compounds in Yiddish.

Chemical propaganda was by no means an isolated incident to Brokhes's textbook. A contemporaneous book, *Khemisher Kamf* ("Chemical Struggle") (12), gave detailed explanations for nonscientists of how to prepare for the predicted chemical war against socialist peoples. From this book, an illustration of how soldiers suited up for gas attacks would appear is shown in Fig. 9.

Since World War II, unfortunately, interest in Yiddish as a medium for education has severely declined, because most native speakers were killed or have died

פאלגנדיקע טאבעלע גיט א באגריפ וועגנ די וויכטיקסטע אויפרייס־שטאפנ:

דריקונג פונ די גאזנ באם פארברענענ 1 קילא	טעמפעראטור באם אויפרייסנ	פונ וועלכע שטאפנ ווערט צוגעגרייט	אנטדעקונג	כעמישער באשטאנד	נאמענ
3400 אטמאספער	2700°	KNO_3,S,C	XIII יארהונדערט, די אראבער	$Hg(CNO)_2$ S —10% C —15%	יעגער־פולווער
4400 ״	?	ספירט, קוועקזילבער, אזאט־זייערס	1799	$Hg(CNO)_2$	קנאל־קוועקזילבער
9800 ״	3200°	גליצערינ, אזאט־זייערס, שוועבל־זייערס	1846	$C_3H_5(ONO_2)_3$	ניטראגליצערינ
9500 ״	2600°	צעלולאזע (וואטע), אזאט־זייערס, שוועבל־זייערס	1845	$C_6H_7O_2(ONO_2)_3$	פיראקסילינ
8600 ״	2400°	קארבאל־זייערס, אזאט־זייערס, שוועבל־זייערס	XV יאר־הונדערט	$C_6H_2(NO_2)_3OH$	פיקרינ־זייערס
7200 ״	?	טאלואל, אזאט־זייערס, שוועבל־זייערס	1900	$C_6H_2(NO_2)_3CH_3$	טראטיל

Figure 8. Table of explosives, from Brokhes's *Khemye*. Column headings from right to left: "Name;" "Chemical composition;" "Discovery;" "From which materials is it prepared;" "Temperature upon explosion;" "Pressure of the gases upon burning 1 kilo."

without passing on the language to their children. Literature, including scientific works, continues to appear occasionally, however. The 1960s saw Sol Podolefsky's book *Di Velt fun Visnshaft, un Visnshaftlekhe Teoryes* ("The World of Science, and Scientific Theories") (13) appear, with numerous short essays on various scientific topics for the layman. Most of these dealt with astronomy, biology, geology, archeology, and cosmogony; but several touched on chemistry, including a not-so-accurate discussion on the structure of the atom (Fig. 10). Other essays explained about fire, hardness of water, diamonds, the discovery of phosphorus, and properties of oxygen and copper.

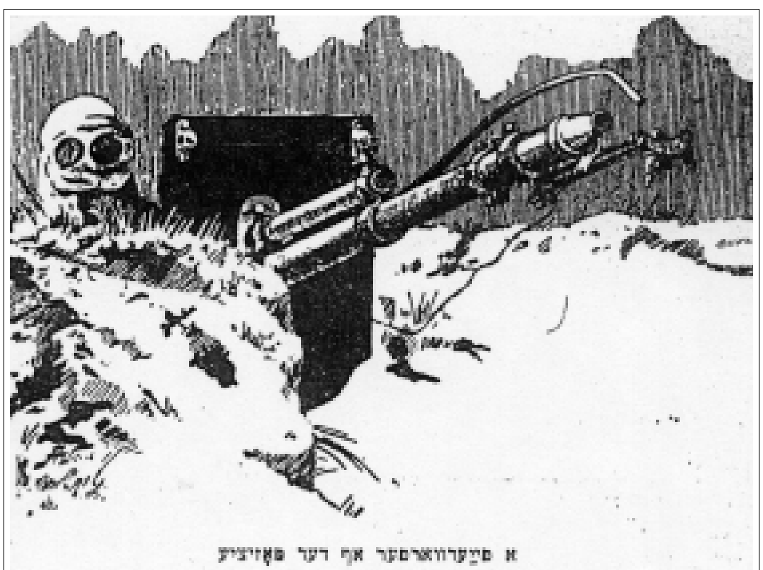


Figure 9. "A flamethrower in position," from *Khemisher Kamf.*

Recent examples of Yiddish works on chemical subjects are primarily news items. The weekly Yiddish newspaper, *Forverts* ("Forward") publishes general news on various world-wide topics, including scientific discoveries, especially when there are political implications (*e.g.*, the energy crisis, greenhouse effect, genetic engineering,). Examples of recent chemistry-related headlines appearing in the *Forverts* are shown in Fig. 11.

Last sources for Yiddish chemical terminology are, of course, various reference books. Uriel Weinreich's *Modern English-Yiddish Yiddish-English Dictionary* (14), considered the modern standard, includes a small number of relatively common terms, useful in general conversation, such as *brom* ("bromine") and *molekul* ("molecule"). Mordkhe Schaechter's recent dictionary *Trogn, Hobn un Friike*

דער געבוי פון דעם אטאם

דער קאפ פון א שפילקע קעפל, וואס וועגט אן אכט־טויזנטל פון אן
אונץ און די גרייס פון א טויזנטל פון א קוביק אינטש, באשטייט פון א צאל
פון 10 ביז 20 נולן אטאמען. דאס איז אזא גוואלדיקע צאל וואס מיר האבן
שוין דערויף קיין נאמען ניט. יעדער אטאם האט א צענטראלן נוקלעאוס, אדער
ניוטראן און א פראטאן ארום וועלכן עס דרייען זיך עלעקטראנען אין פאר־
שידענע ארביטס. די גרייס פון ניוטראן איז א סך קלענער ווי דער אטאם
אליין. אבער די ארביטס פון די עלעקטראנען זיינען גרויס לויט דער גרייס
פון אטאם.

Figure 10. The beginning of an essay on "the structure of the atom" from *Di Velt fun Visnshaft*: "The head of a pin, which weighs an eight-thousandth of an ounce and a thousandth of a cubic inch in size, consists of an amount of 10 to the 20 zeroes atoms. This is such a huge amount that we don't yet have a name for it. Each atom has a central nucleus, or neutron and a proton [sic] around which revolve electrons in different orbits. The size of a neutron is much smaller than the atom itself. But the orbits of the electrons are big according to the size of the atom."

Kinder-Yorn ("Pregnancy, Childbirth and Early Childhood") (15) includes a few chemically related terms such as *de-en-a* ("DNA"), *haytl* ("membrane"), and *tsinkzayers* ("zinc oxide"). Within the League for Yiddish's quarterly journal *Afn Shvel* ("On the Threshold") is Schaechter's language column, "Laytish Mame-Loshn" ("Proper Mother-Tongue"), in which he explains correct Yiddish grammar and vocabulary. Occasionally he includes chemistry terminology (16), such as *zayers* (acid), *zayersdikayt* (acidity), and *zayers-regn* (acid rain). On the other hand, Nahum Stutchkoff's massive *Der Oytser fun der Yidisher Shprakh* ("The Thesaurus of the Yiddish Language") (17), arranged very much like an English *Roget's Thesaurus*, includes literally hundreds of terms related to chemistry, ranging from the obsolete *doberiners triadn* ("Dobereiner's Triads") to *daltons gezets vegn teylvayzn druk* ("Dalton's Law of Partial Pressures"), as well as verbs like *filtrirn* ("to filter"), or *sublimirn* ("to sublimate"), and elemental names such as *silitsyum* ("silicon") and *bor* ("boron"). (See Fig. 12.)

די נאבעל־פרעמיעס פֿאר וויסנשאפֿט אינעם יאָר 2000

ברען־מאַטעריאַלן פֿאַרן 21סטן יאָרהונדערט

נייע זון־צעלע קאן ווערן דער וויכטיקסטער ענערגיע־קוואל

Figure 11. Recent chemistry-related headlines from the *Forverts* newspaper: (top) "The Nobel Prizes for science in the year 2000," Oct. 13, 2000; (middle) "Fuels for the 21st century," July 7, 2000; (bottom) "New solar cell can become the most important energy source," Sept. 20, 1996.

With the help of several scientifically oriented native Yiddish speakers, I have created a modern chemistry dictionary with about 3,000 words and phrases from *absoluter alkohol* ("absolute alcohol") to *tishboyres* ("fractional number") (18). In addition, to promote the use of chemistry-related terms in the home with children, I co-authored a web-based article in the internet magazine *Der Bavebter Yid* ("The Interconnected Jew") in Yiddish on generating electricity with two dissimilar metal strips inserted into a lemon (19).

For a language that has been sequestered most of its existence in the Eastern European areas where Jews were forced to live, a legitimate question is whence did Yiddish's chemical vocabulary arise? No definitive study has been done on the etymology of scientific terminology—let alone general word origins—in Yiddish, so some speculation is offered herein. Besides coinages native to Yiddish, probably the primary source is German, for several reasons. Modern *Hochdeutsch* is quite similar to Yiddish, and it was in widespread use in the 19th century as the medium of chemical research and instruction. Furthermore, in the late 19th through early 20th centuries, a style of Yiddish usage (*daytshmerish*) suggesting higher education and social status incorporating much German general vocabulary was in vogue (20). Feinstone's *Khemye* made extensive use of such "*daytshmerisms*" ("Germanicisms"), to the point of being stilted for today's Yiddish speakers. Examples of words from German are names of certain elements, such as *vasershtof* (*Wasserstoff*, hydrogen), *zoyershtof* (*Sauerstoff*, oxygen), and *shtikshtof* (*Stickstoff*, nitrogen). The common name of carbon dioxide in Yiddish is *koyln-zayers* (*cf.* German *Kohlensäure*, carbonic acid).

A second source of vocabulary is from Slavic languages (Russian, Polish, Serbian, Czech, etc.), because of the geographic proximity. For "rust", Yiddish uses *zhaver* (*cf.* Russian *rzhavchina*). For "slaked lime," the Yiddish term is *vapne* (Polish *wapno*). "Neutral" is *neytral* in Yiddish (Russian *neytral'niy*), and "flask" is *kolbe* (Polish and Russian *kolba*).


218—217

218. כעמיע

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Figure 12. Yiddish thesaurus with topic 218, “Chemistry,” starting on the lower right, with entries “chemistry; general, analytical, theoretical, physical,” continuing on the left column “practical, organic, inorganic, etc. chemistry; biological chemistry, biochemistry; microchemistry, thermochemistry, geochemistry, pharmacochemistry, electrochemistry, photochemistry, etc.; agricultural chemistry, zoochemistry, alchemy…”

The Hebrew-Aramaic component of scientific Yiddish is found in *mashmoesdikeyt* (probability [as in statistics]), *umseyder* (disorder, a combination of Germanic *um*-, “dis-,” and *seyder*, “order”), and *makhshir* (instrument, tool, apparatus). The influence of French, the language of culture that the Russian nobility admired, appears occasionally in Yiddish. Two examples are the second name of nitrogen, *azot* (Russian *azot*, probably from French *azote*), and *nivo* (“level” [height, *e.g.*, of a liquid in a container or energy of electrons], from French *niveau*).

Finally, internationalisms, generally from Latin or Greek, common to many languages beginning with the Renaissance and accelerating during the Industrial Revolution, are found throughout Yiddish, including most element names, organic and inorganic naming conventions, mathematical terms, units for the metric system, subatomic particles, and so forth.

As we have seen, Yiddish has nearly all types of chemical literature: textbooks for the serious student and layman, teacher's guides, newsworthy articles, and reference sources of terminology (21). One important and notable absence is journals in which to report original chemical research.

Considering the general utility of chemical literature in Yiddish, one might examine the population of the present speakers and readers of the language. Estimates of the number of Yiddish speakers in the 1930s ranged from 10.7–11.9 million. By contrast, Birnbaum estimated the number of Yiddish speakers had dropped to 5–6 million by the late 1970s (22). It would not be unreasonable, therefore, to guess, solely on the basis of natural attrition and general lack of transmission of the language to the youth, that the number of Yiddish speakers has been cut in half yet again. According to the 1990 United States Census, Yiddish was the 16th largest language spoken in the USA, with 213,000 speakers over age 5 (23). Though full statistical data have not been released yet, the 2000 United States Census counted nearly 179,000 people over the age of five who spoke Yiddish (24), out of estimates ranging from 5.2–6.1 million Jews in the USA (25, 26), or only about 3 % of the Jewish population. At present, most Jews of Eastern-European descent communicate among themselves in the language where they live (*e.g.*, English, Hebrew, Russian, French,), rather than Yiddish; therefore the need for discussion of matters concerning chemistry is perceived as correspondingly low. Offsetting slightly the general decline in the use of Yiddish, the religiously strict and often isolated Hasidim still use Yiddish as their everyday means of communication; they tend to have larger families. The Census showed that 36,000 children ages 5–17 used Yiddish in the State of New York alone in 2000 (27).

Today, in the European Community, the Yiddish language is under the jurisdiction of the "European Bureau of Lesser Used Languages" (28) and has gained official status as a recognized Jewish language (along with Ladino) in Israel. The Jewish Autonomous Region of Birobidzhan, established in 1934, in remote far eastern Russia near Manchuria, has used Yiddish as an official language since 1935, though no more than roughly 5,000 Jews remain there out of over 200,000 inhabitants. For the past several decades, a growing number of colleges and universities around the world have offered classes in Yiddish, catering to the small but increasing interest by the young for this thousand-year-old language with much to offer, even in science. Perhaps we will see an increase in the use of Yiddish, as well as with other minority languages, to transmit the excitement of chemistry, a universal topic, in the future. Table 2 gives the first 18 elements from the Periodic Table in Yiddish.

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I wish to thank the late Ezra Stone (the son of Sol Feinstone) and his son Josef Stone, along with the David Library of the American Revolution, in Washington Crossing, PA, for the opportunity to examine the Library's copies of Sol Feinstone's *Khemye*. **NOTE:** Yiddish transcription is according to the YIVO (Institute for Jewish Research, New York) standard.

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ABOUT THE AUTHOR

Stephen M. Cohen is a Technical Writer for Jobin Yvon, Inc. He obtained his Ph.D. in physical chemistry from Rice University in 1992. His research has included surface chemistry, nonlinear spectroscopy, spectroscopy of free jets, and corrosion of aluminum. While an undergraduate chemistry major at the University of Pennsylvania, he took two years of Yiddish Language. He now raises his children in a Yiddish-speaking household, and collects scientific materials in the Yiddish language. Besides research-oriented publications and instruction manuals for scientific instrumentation, he has published works on the history of chemistry, chemical education, and a range of nonscientific topics. He can be reached at 9 Cherry Brook Lane, East Windsor, NJ 08520; drstevecohen@earthlink.net.