water) and stored in the shade. Some logs were sprayed on one side, some on both sides, and others were not sprayed. Sprayed logs showed less insect damage than unsprayed logs, less damage from blue stain caused by fungi assocd. with bark beetles, somewhat less stumpage decay, and somewhat less stain from airborne spores. There were only small differences in the lumber from logs sprayed on one or both sides. The spray was effective only during cool humid conditions, which minimized checkering. The spray did not reduce checkering. John Christensen

46387e Initial and residual activity of Cidial (phenthoate) against mosquitoes as compared with that of other well-known products. Tomasucci, G.; Michieli, G. (Agr.-Res. Inst., Montecatini Edison S.p.A., Milan, Italy). *Mosquito News* 1968, 28(3), 430-4 (Eng). Expts. were conducted to test the activity of Cidial against *Culex pipiens*, *Aedes aegypti*, *Anophe es gambiae*, and a strain of *Anopheles albimanus* resistant to DDT–dieldrin along with some well known insecticides. Cidial provided high initial activity against the larvae of *C. pipiens*, *A. aegypti*, *Anopheles gambiae*, and *Anopheles albimanus*. It was more effective than DDT, dieldrin, malathion, and dichlorvos and slightly inferior to fenthion, parathion, methylparathion, and Sumithion against *C. pipiens* and *A. aegypti*. The control of *Anopheles gambiae* given by Cidial was slightly inferior to that of parathion whereas it proved equiv. to or better than all the other chemicals tested. Against *Anopheles albimanus* Cidial was inferior to parathion and methylparathion only. Cidial was successful against the larvae of all instars of *C. pipiens* and when used at a higher dosage; it was also successful against pupae. No control of eggs was obtained even with the 1 ppm. dose. Residual activity of Cidial at LC_{95} level against *C pipiens* in water was found to be higher than that of malathion, heptachlor, and dieldrin and inferior to that of fenthion. Different Cidial formulations such as granules, dust, wettable powder, and emulsifiable liquids did not show any significant influence on the residual activity against *C. pipiens* larvae. Larvicidal activity of the oil formulations was due within certain limits of doses and time to the presence of Cidial in the formulation itself. Cidial did not remain in the oily film which developed on the water surface. It spreads into the water a few hrs. after the oil formulation had been applied. The residual activity of Cidial was greatly affected by water pH. It was max. at pH 6.0 and gradually decreased as the pH was raised. Cidial also displayed a marked initial activity against 48 to 72 hrs.-old females of *C. pipiens*, *Anopheles gambiae*, and *Anopheles albimanus*. This control was superior to that given by fenthion, malathion, DDT, and dieldrin in the case of *C. pipiens*, by malathion and DDT in the case of *Anopheles gambiae*, by malathion, DDT, and dieldrin in the case of *Anopheles albimanus*. Residual activity of Cidial applied to fir-wood and poplar plywood panels against 48–72 hr. females of *C. pipiens*, *Anopheles gambiae* and of a strain of *Anopheles albimanus* proved very high (140–210 days) and was found to be as good as that of fenthion and much superior to that of malathion. All products tested on plastered panels showed a low degree of residual activity against the above-mentioned 3 species. C. L. Keswani

46388f Polychlorinated biphenyls in the global ecosystem. Risebrough, Robert W.; Rieche, P.; Peakall, David B.; Herman, S. G.; Kirven, M. N. (Univ. of California, Berkeley, Calif.). *Nature* 1968, 220(5172), 1098–102 (Eng). Results are given of analyses of peregrine falcons which died from a variety of causes shortly after being trapped for falconry. Significant amts. of polychlorinated biphenyls (PCB) were present in Arctic peregrines only a few months old, but higher residues were present in a second year Arctic bird, and exceptionally high residues were present in an adult trapped in California. In 2 birds the total lipid reserves were very low, and in both the brain concns. of DDE and PCB were high, perhaps at toxic levels. Dieldrin concns. were lower than in the peregrines analyzed in Britain, but DDE concns. were approx. comparable. In 1968 no pairs of peregrines were observed to hatch or fledge more than a single young, compared to 2-4 young in the past. The thickness of fragments of a peregrine eggshell, with its membrane, collected in 1968 was 0.24 mm., a decrease of 34% from the mean thickness of 0.34 mm. ±0.015 mm. in 23 eggs collected in the same wilderness region before 1947. In California, mts. of breeding peregrines have been reduced by at least 80% in recent years. Results of analyses of marine and terrestrial birds and of 3 species of freshwater fish for PCB and DDT content and concn. show that regional fallout patterns exist. A significant fraction of chlorinated hydrocarbons must come from the atm., and air transport best explains the presence of PCB in remote areas. Body concns. of 40 ppm. of *p,p'*-DDE significantly increased the rate of estradiol degradation by the induced hepatic enzymes. On a wt. basis the PCB prepn. had an estradiol-degrading potential approx. 5-fold that of *p,p'*-DDE or tech. DDT. Both DDE and PCB have the capacity to produce sublethal physiol. effects in birds. The redns. in eggshell thickness and eggshell wt. increase the chances of egg breakage and water retention, which affects hatching success. J. E. Fetkovich

46389g Tests for toxicity of nematox, a Polish preparation of Vapam. Chmielewska, Krystyna; Majda, Aleksander (Inst. Przem. Org., Warsaw, Poland). *Postępy Nauk Roln.* 1968, 15(1), 87–90 (Pol). Nematox, a 37% aq. soln. of Na *N*-methyldithiocarbamate (I), tested on rats, had a oral LD_{50} of 346 mg./kg. Expts. with rabbit skin showed severe irritation and there were slight effects on the eye. I had no allergic effects in guinea pigs. 11 references. Maria Lesiak

46390a DDT resistance in barley, Hordeum vulgare. I. Induced mutants for resistance. Wallace, Alvin T.; Rillo, F. O.; Browning, R. M. (Florida Agr. Exp. Sta., Gainesville, Fla.). *Radiat. Bot.* 1968, 8(5), 381–8 (Eng). Most barley cultivars are susceptible to DDT; resistance is recessive and is dependent on 1 or 2 pairs of genes. Resistant mutants were induced with γ-rays and ethylenimine in a susceptible biotype. The M_2 mutant seedling frequencies for 10 kilorads and 20 kilorads of γ-rays were 6.35 and 12.20 ($\times 10^{-4}$), resp. The frequencies for 0.08 and 0.08% ethylenimine were 18.72 and 28.96 ($\times 10^{-4}$), resp. These data, along with the frequencies of chlorophyll mutations observed, suggested a mutagen-locus specificity response. The degree of resistance for 124 mutants was detd. by measuring the chlorophyll content in treated leaf tissue. This classification showed that some of the mutants were only partially resistant, ranging from almost completely resistant to fully susceptible. Segregation ratios of progenies from crosses of the mutants to the susceptible parent indicated that in most cases, the mutation does not reduce its gametic transmissibility. The segregation data and the redn. in chlorophyll content of treated leaf tissue suggested that some of the mutants were temp. sensitive and that possibly >1 type of gene action was responsible for resistance. RCMZ

46391b Histologic methods for the study of the effect of anthelmintics on parasites. Reznik, G. K. (Inst. Gel'mintol. im. Skryabina, Moscow, USSR). *Sel'skokhoz. Biol.* 1968, 3(5), 765–8 (Russ). All sheep and rabbits were treated with CCl_4 (I), chlorophos (II), and hexachloro-*p*-xylene (III) and the effects on mature *Fasciola* and *Dicrocoelium* was studied. The parasites were obtained after their discharge from fistulas or sacrifice of the animals. In the doses given I and III were toxic for *Fasciola* and II and III for *Dicrocoelium*. I was absorbed from *Fasciola* only by the blood of the host, and III by blood and bile. Both II and III were absorbed through the bile of the host. The time for penetration of the prepns. into the parasites and for causing toxic changes and finally their death was studied according to the doses and routes of application. The histomorphological changes in the tegument and intestines of the parasites after the treatment are also described. Todor K. Shipkov

46392e Molluscicide of petroleum origin. Shirinov, N. M.; Kuliev, A. M.; Mamedov, A. K.; Mamedov, F. N. *Tr. Azerb. Nauch.-Issled. Vet. Inst.* 1967, 21, 243–6 (Russ). Isopropylbenzene was heated with H_2CO, NaCl, AcOH, and H_2SO_4 for 0 hrs. at 70°; the oil was sepd., washed, dried, and distd., b.p. not given. This product was heated with water and pyridine for 8 hrs. at 98°. The lower layer was sepd., dried, and mixed with Me_2CO, yielding white crystals, m.p. and chem. compn. not given; anal. data indicated isopropylbenzylpyridinium chloride. A 1:25,000 soln. in water reservoirs gave complete control of freshwater mollusks which may act as hosts for liver flukes. There was no toxicity to ruminants drinking the water. Everett E. Gilbert

46393d Experimental use of carbophos to combat lice. Odinets, A. A. *Tr. Tsent. Nauch.-Issled. Dezinfek. Inst.* 1967, No. 18(Pt. 2), 13–17 (Russ). Emulsions and dusts of carbophos (malathion) were compared with DDT for control of *Pediculus humanus*. Complete kill was noted in 24 hrs. on cloth contg. 0.011 g./cm.², 5% of the requirement of DDT. Treatment of all clothing for one person requires 250 g. of 5% dust. Carbophos is recommended over DDT for louse control. Everett E. Gilbert

46394e Combatting cockroaches by the use of poisoned bait. Pogodina, L. N.; Bulkman, L. I.; Kapanadze, E. I. (USSR). *Tr. Tsent. Nauch.-Issled. Dezinfek. Inst.* 1967, No. 18(Pt. 2), 19–25 (Russ). Sugar, corn meal, and wheat bran are suitable baits for *Blattella germanica* and *Blatta orientalis*. Chlorophos (Dipterex), H_3BO_3, and borax were used as toxicants. All gave complete kills of both species in 1–7 days, the fastest being with a mixt. of 0.5% chlorophos, 20% sugar, and 79.5% water. Slower kills were noted with less water, or with 1% toxicant. Everett E. Gilbert

46395f Insecticidal and acaricidal properties of lignothiophos, and its toxicity for animals. Kerbabaev, E. B.; Vashkov, V. I.; Volkova, A. P.; Pershina, L. A.; Berdyev, A. S. (Tomsk. Politekh. Inst., Tomsk, USSR). *Tr. Tsent. Nauch.-Issled. Dezinfek. Inst.* 1967, No. 18(Pt. 2), 35–7 (Russ). A 2% dust of the title compd. (a mixt. of di-Et phosphorochloridothioate and nitrolignin) gave 100% kill of flies, fleas, cockroaches, and bedbugs at 0.25 g. active ingredient/m.². At 0.125 g. the kills were 100, 60, 70, and 93%, resp. For control of ticks on camels, the compd. was 10-fold more active than hexachlorocyclohexane and was longer-lasting. Application of the dust to lab. animals at 0.2 g. active compd./m.², once daily for 15 days, gave no toxic