(Continued from page 100)

Inefficient Medical Care

The computers at Yale–New Haven and New York hospitals have not looked in the right place if, as Deborah Shapley reports (News and Comment, 28 Feb., p. 30), they have found no evidence of waste and inefficiency.

The place to start looking is in the information flow of daily medical care. Every doctor in practice wastes hours looking for information that ought to be handed to him as he needs it. Patients sit around in waiting rooms while someone tries to find their medical records. Medical care suffers, not in the glamor fields like open heart surgery, but in the thousands of times information is passed from one person to another.

In the clinical laboratory alone, which accounts for nearly one-quarter of the nation's hospital bill, 50 percent of laboratory results are unused medically (*1*); 40 percent of patients' records are incomplete (*2*); 30 percent of test requests are not properly processed (*3*); 20 percent of laboratory reports are lost (*2*); and 10 percent of laboratory specimens are never received (*2*).

SAMUEL RAYMOND
William Pepper Laboratory, University of Pennsylvania Medical School, Philadelphia 19104

References

1. P. F. Griner and B. Liptzin, *Ann. Intern. Med.* **75**, 157 (1971).
2. S. Raymond, unpublished data.
3. F. Matthews, *Med. Lab. Observ.* (August 1974), p. 74; S. Raymond, L. Chalmers, W. Steuber, in *Proceedings of the Spring Joint Computer Conference* (Afips, Montvale, N.J., 1971).

Honeybee Controversy

Regarding the correspondence (Letters, 6 Sept. 1974, p. 814; 13 Dec. 1974, p. 975) about the von Frisch versus Wenner controversy over the language of bees, it has been suggested that von Frisch's hypothesis alone applies (*1*); that Wenner's hypothesis alone applies (*2, 3*); and that they are not mutually exclusive and may peacefully coexist (*4*). Now Davenport (Letters, 13 Dec. 1974, p. 975) offers us the vision of a compromise.

As a firm supporter of Wenner's hypothesis, I believe, however, that the controversy will not be resolved until it is generally understood that it reflects a much wider, basic, theoretical controversy between Lorenz's school of animal behavior and Schneirla's school (*5*).

The behavior suggested by Wenner's hypothesis will only make sense when viewed as a detail within the context of the continuous, dynamic process of the ontogenetic development of foraging behavior in the honeybee. It is exactly the need for this kind of study, while bearing in mind the low psychic level of insects in general, which is urged by Schneirla's theory.

Davenport might have explained to his students that the problem is somewhat more complicated than he seems to suggest. Firm supporters of von Frisch's hypothesis are well aware, for instance, that one of the Wenner groups' major experiments (*3, 6*), is based by the group on the assumption that the accumulation of odor in the hive facilitates recruitment of new bees to an outside food source scented with this odor, on the following day (*3*). This assumption has, however, been summarily disproven by Lindauer (*7*). No wonder supporters of von Frisch refuse to budge.

Wenner's group made a major breakthrough when they found that the mere introduction of odor into the hive will cause foragers, at the phase in which they cease to forage at an outside food source scented with this odor (after depletion of the source), to resume flights to the source (*3, 8*). However, the mere accumulation of odor in the hive does not have the effect Wenner's group believes it has. The effective factor in that case is the accumulation in the hive of bees who have experienced the exchange of tactual stimuli with a dancing forager carrying this particular odor, and have received food from her that is scented with this odor. This situation involves bees at a very different phase, that is, one of the dance-attending phases. One can dispense with dances, or even with the mediation of a returning forager carrying the odor into the hive, in the first situation, but not in the second (unless, of course, one uses a very sophisticated dummy which will not only dance, but also distribute food).

This small example accentuates the need for a detailed study of the ontogenetic development of foraging behavior in the honeybee, similar to the one carried out by Schneirla for the army ants (*9*). Such a study would remove all sort of hurdles which Wenner's hypothesis constantly runs into. Wenner has mainly extended his studies

over space (justifiably demanding that the behavior of the whole population during a certain incident be taken into account), but as far as the individual development of the behavior of bees over time is concerned, he has barely touched some isolated incidents in a dynamic continuum.

R. ROSIN*

Department of Zoology, Hebrew University of Jerusalem, Jerusalem, Israel

References and Notes

1. K. von Frisch, *The Dance Language and Orientation of Bees* (Belknap, Cambridge, Mass., 1967); *Science* **185**, 663 (1974).
2. A. M. Wenner, in *Animal Communication; Techniques of Study and Results of Research*, T. Sebeok, Ed. (Indiana Univ. Press, Bloomington, 1968); P. H. Wells and A. M. Wenner) *Nature (Lond.)* **241**, 171 (1973).
3. A. M. Wenner, *The Bee Language Controversy: An Experience in Science* (Educational Programs Improvement Corp., Boulder, Colo., 1971).
4. J. L. Gould M. Henerey, M. C. MacLeod, *Science* **169**, 544 (1970).
5. N. R. F. Maier and T. C. Schneirla, *Principles of Animal Psychology* (McGraw-Hill, New York, 1935; *Principles of Animal Psychology* (Dover, New York, 1964); W. N. Tavolga, *Principles of Animal Behavior* (Harper & Row, New York, 1969); specifically essays by G. Piel, D. S. Lehrman, J. W. Atz, and W. N. Tavolga, in *Development and Evolution of Behavior; Essays in Memory of T. C. Schneirla*, L. R. Aronson, E. Tobach, D. S. Lehrman, J. S. Rosenblatt, Eds. (Freeman, San Francisco, 1970); K. L. Lorenz, *Evolution and Modification of Behavior* (Univ. of Chicago Press, Chicago, 1965).
6. A. M. Wenner, P. H. Wells, D. L. Johnson, *Science* **164**, 84 (1969).
7. M. Lindauer, *Am. Nat.* **105**, 89 (1971).
8. A. M. Wenner and D. L. Johnson, *Anim. Behav.* **14**, 149 (1966); D. L. Johnson and A. M. Wenner, *ibid.*, p. 261; D. L. Johnson, *ibid.* **15**, 487 (1967).
9. T. C. Schneirla, in *Army Ants*, H. R. Topoff, Ed. (Freeman, San Francisco, 1971).

* Present address: 16 West 82 Street, New York 10024.

Political Decision

Recent history suggests that, rationalism and "objectivity" notwithstanding, scientists are at least as politically gullible as anyone else. In 1931 Sir Julian Huxley visited the Soviet Union and returned to England to publish *A Scientist among the Soviets* (*1*), praising "the elevation of science and scientific method to its proper place in the affairs" of that country. In 1949 he felt obliged to recant in *Soviet Genetics and World Science* (*2*), a book written in defense of "that freedom of the intellect which we fondly imagined had been laboriously won during the past three or four centuries." A reading of Medvedev's *Rise and Fall of T. D. Lysenko* (*3*) makes it very plain that there was no fundamental change in Soviet society during this period; the crushing of intellectual freedom was an inevitable consequence of ideological totalitarianism. One hopes the sad saga of H. J. Muller's sojourn in the Soviet wilderness has not been forgotten, nor J. B. S. Haldane's ultimate resignation from his beloved Communist Party in protest of Lysenkoism. Yet, human nature being what it is, scientists continue to seek utopias in improbable places. I have not been to Cuba, but on reading the letter from Ellis, Levitt, and Fausto-Sterling (27 Dec. 1974, p. 1159) I felt an overwhelming sense of déjà-vu: once again the United States, and the United States alone, is hindering the realization of paradise on Earth in a revolutionary Socialist state.

We may all praise the Cuban revolution if it has indeed stimulated science there, but that is not all that it has done, and at any rate mere numbers are no indication of intellectual climate, as Russia's record shows. The price of the revolution is being paid, most immediately by the prisoners behind barbed wire on the Isle of Pines and elsewhere (are there any scientists among them?), but ultimately, perhaps, by all the Cuban people under a regime which subordinates human freedoms to the state ideology. I hope readers of *Science* will keep this in mind while pondering the appeal for support from the scientific community for an end to the blockade. This is a political decision with many consequences, of which improvement in scientific communication may be one of the least important. I hope readers who are impressed by the figures concerning women and minorities in Cuban science will balance them against the ruthless persecution of homosexuals reported even by observers favorably disposed toward the new Cuban society (*4*). As for the ideal of international cooperation embodied in the charters of the United Nations and Unesco, I will take Ellis *et al.* more seriously when they publicly denounce the Castro regime's complicity in the unprecedented subversion of those ideals by the Third World when it read Israel out of Unesco in 1974.

ARTHUR SHAPIRO

Department of Zoology, University of California, Davis 95616

References

1. J. S. Huxley, *A Scientist among the Soviets* (Chatto & Windus, London, 1932).
2. ———, *Soviet Genetics and World Science* (Chatto & Windus, London, 1949).
3. Zh. A. Medvedev, *The Rise and Fall of T. D. Lysenko*, I. M. Lerner, Translator (Columbia Univ. Press, New York, 1969).
4. E. Cardenal, *In Cuba* (New Directions, New York, 1974); D. Caute, *Cuba Yes?* (McGraw-Hill, New York, 1974); J. Nicholson, Jr., *Inside Cuba* (Sheed and Ward, New York, 1974).