the plethora of candidates, no interviews.

Industry—38 written, no jobs at 38. It is difficult to delineate properly the response from industry as was done for teaching positions, but the fundamental content of their response was that there were no jobs.

The next few months will indicate to what extent a job shortage exists for physicists, after the spring sorting out is concluded. And it will still be difficult to know what to do. But until I am convinced of some better guidelines, I am not taking on any more graduate students.

STANLEY SEGEL
Queen's University
Kingston, Ontario

•

I would like to remind Clancy and his fellow chairmen with full "circular files" that common courtesy and thoughtfulness are two-way things. Replies to my inquiries (all individually typed and with a salutation) the past year about physics teaching positions have ranged from no reply at all, to one line saying "no openings," to a mimeographed form dated over a month before I received it. However, I must admit that department chairmen (or their secretaries) are better than us poor applicants; only about 7 out of 10 replies were of the above type.

LARRY L. LYNN
Massachusetts Institute of Technology

•

While agreeing with Edward P. Clancy's observations (April, page 15) we would like to point out a similar situation we have observed from our side of the market. It is amazingly common to submit applications and letters of recommendation and then never to hear from the institution. It appears to us that when an institution actively solicits applications by advertisements or placement services, the very least it owes those who have responded is a notice that the opening has been filled.

At the Chicago meeting of the American Physical Society we had interviews that were initiated by ourselves and by the school representatives. These interviews resulted in the representatives expressing an interest in our qualifications and a request for us to submit formal applications and letters of recommendation. One even asked for a prospectus detailing the equipment and expense necessary to establish a low-temperature laboratory. It takes a lot of time and effort to respond properly to these requests, not only for the candidate, but also for those who are kind enough to furnish recommendations. Two months later we have yet to receive even an acknowledgement, even though we have heard through other sources that some of these positions have been long filled.

As the pages of PHYSICS TODAY make clear, it is a buyer's market; but this sort of treatment seems to us to be unnecessarily rude.

RICHARD H. BURKEL
J. MARTIN PECK
University of Cincinnati

About cycles—bi- and motor

The article on the stability of the bicycle by David E. H. Jones (April, page 34) has, except for the computer-generated curves, been covered in most popular motorcycle magazines in the last few years. The fact that increased rake, or steering angle, provides increased directional stability at the expense of quick maneuverability is well known both to manufacturers, who provide greater rake on trail and dirt machines than on street bikes, and to outlaws—the traditional "chopper" includes a much increased rake.

Technical publications on the subject exist. I would suggest a search of British engineering journals for papers by Philip Vincent, dealing with a speed-record machine with variable trail (front projection).

Of course, the motorcycle problem is complicated by suspension movement. If the author could include this factor in his programming, I would be very interested in the results.

JAMES HOSKIN
Secretary
The Calgary Motorcycle Club
Alberta

THE AUTHOR COMMENTS: Of course, any enterprising manufacturer will know from experience roughly what results to expect from changes in the front-fork design of his machines, and in the competitive world of motorcycling there is naturally a good deal of empirical lore on the subject. My article was more concerned with the theory behind such knowledge, which

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is much less well represented in the literature. I have not so far tracked down the papers by Philip Vincent, but if there are any more recent or more rigorous references to the theory of the bicycle than the ones I quoted, I would be very glad to know of them.

As Hoskin points out, the motorcycle presents a more complicated problem than the pedal cycle. Apart from suspension complications, its higher design speed and massive front wheel mean that gyro effects will be much more important. Furthermore, the greater weight of the swivelling front assembly, whose center of mass is well ahead of the steering axis, contributes another important torque on that axis when the bike leans. I feel it would be prudent to be sure of the theory of the simple bicycle before attempting detailed analysis of the motorcycle.

DAVID E. H. JONES
Runcorn, UK

•

David Jones errs in calling his creations URB's, or unrideable bicycles. Because they can all be ridden, with greater or less difficulty, they are, at best, subURBs.

C. W. MCCUTCHEN
Bethesda, Md.

The nonscience major

As an applied scientist, I was interested in your special issue (March) on "The Nonscience Major." The implication throughout the issue is that faculty members in the pure-science departments have an important role to play in teaching science to nonscience majors. I would raise two questions: One, do they really have a major role to play in this important area? Two, do the physicists not realize that the applied scientists have been playing an important role in relating science to nonscience majors for years? Let us look briefly at these two points.

Consider the first. I think it is well to remind ourselves that there is a continuum in science and technology going from the pure sciences through the applied sciences to engineering. Each of these areas has important responsibilities; the whole of science and technology is only as strong as the strength of each of these individual segments. Pure-science departments continue to have an important mission, that is, the training of their own students and the offering of basic science courses to students in the applied-science and engineering disciplines. It is of vital importance that students in the latter two categories have a firm foundation in basic science upon which to build. I question that the pure-science departments also have a major role to play in the teaching of nonscience majors.

This brings us to the second point. Faculty members in academic departments of applied science within the areas of biological sciences, earth sciences and materials sciences have for years been teaching students the application and relevance of science to the world around them. I contend that these faculty have been successful at this task and that they are the logical people to teach "science" to the nonscience majors. After all, they have been concerned with the application of science and its place in society long before it became the "in thing" to do. At my university, the most successful science courses for the nonscience majors are not primarily taught by members of the physics or chemistry departments but by biophysicists, biochemists, geologists, meteorologists, and materials scientists Again I emphasize that I think this is what one would expect. The application of science is being taught to the nonscience majors primarily by the applied scientist and not by the pure scientist.

In the special issue on "The Nonscience Major", the writers seem to be on the defensive about the lack of activities in physics departments in the application of science and their offering of suitable courses for the nonscience major. Some young people seem likewise to be concerned about this. I think the answer is straightforward and that the pure scientist need make no apologies. The production of useful things and processes for society rests heavily on the foundation laid down by the pure scientist. Thus, the pure scientist simply recognizes that responsibility and is not defensive about it.

As I see it, it is increasingly the responsibility of the applied scientist and engineer to emphasize to the young people, society, and the government the vital role that the basic scientist is playing in our overall science–technology effort and to urge